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ECL 266

HOW TO DESIGN, MANUFACTURE AND INSTALL AN UNSAFE BLOWER SYSTEM

A worker suffered a serious hand injury when he was cleaning out a trim blower. Was he just careless or is the manufacturer of the blower guilty of producing a defective design? Was the equipment placed in service with inadequate warnings?

Robert K. Taylor, M.S., P. E.
Tim A. Jur, Ph.D., P. E.
ENGINEERING DESIGN & TESTING CORP.
Columbia, South Carolina

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HOW TO DESIGN, MANUFACTURE AND INSTALL AN UNSAFE BLOWER SYSTEM

PART A

CIRCUMSTANCES

A worker suffered a serious hand injury when he was cleaning out a trim blower. Was he just careless or is the manufacturer of the blower guilty of producing a defective design? Was the equipment placed in service with inadequate warnings?

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PROLOGUE

On a cold morning in January Ron Timmons awakened early. In spite of the forecast for early morning snow which would make getting to work a little slower, he wanted to arrive at work early. Ron had recently been assigned to operate the company's new press, and he wanted to continue reviewing the operational manuals before his shift started. He knew that keeping the machine running smoothly could give him a crack at the shift foreman's job when Joe would retire in a couple of years. Ron was almost through breakfast when his children joined him and his wife at the breakfast table.

Snow and ice had formed on the car window and when Ron had scraped it off, he went back inside to pick up his lunch box and to bid farewell for the day. The children were quite excited. No school today because of the snow.

The prior weekend Ron had worked on repairing sleds, but had not quite finished. He could still get to work on time if he stayed and fixed them; he could study the manual another time. After all, he had been trained on the machine, and the extra review was not really required. He led his children downstairs, made the 15 minute repair and was off to work, looking forward to a smooth day.

PART A

THE CIRCUMSTANCES

The Holland Company is a manufacturer of bank checks and checkbook covers. In making checks, Holland purchases paper, brings it into its printing facility and prints sheets of numbered and addressed checks on the paper. The printing presses used by Holland are manufactured by Hampton Tool Company. During the printing process the edges of the paper are trimmed to size. The paper trimmings are removed from each press by suction through a pair of flexible metal hoses (one on either side of the press) connected to a squirrel cage trim blower. Air current generated by the blower serves the purpose of removing the trimmings from the presses, and the fan blades shreds them as they go through the blower. After leaving the blower, the shredded paper again travels through a flexible hose and enters an exhaust system manifold. This manifold is fabricated from PVC pipe and using only moving air, routes paper trimmings from a number of presses to an outside collection bin.

Periodically a trim blower would become jammed with paper, and the press operator would have to take steps to remove the paper from the clogged area. To clear a jam, the blower and its exhaust hose connection had to be partially disassembled, and the paper had to be physically removed.

On January 29, 1979, Mr. Ron Timmons was operating one of the Hampton printing presses at the Holland facility when paper become jammed in the trim blower. Mr. Timmons walked to the opposite side of the press where the blower was located and started removing the jam. In doing so, he first removed the flexible hose coming from the blower and, with the blower running, reached into its outlet port to remove the clogged paper. In the process of removing the paper, his hand contacted the trim blower blade. As a result he suffered serious and permanent injury to his hand. Three fingers on his left hand were amputated; his other finger and thumb were injured. At the time of the accident Mr. Timmons had been working for Holland for approximately six years. He was 36 years old. Following the accident and following settlement of the worker's compensation claim, he brought a lawsuit against Hampton Tool Company and the Eastern Fan Company, the manufacture of the squirrel cage blower. Mr. Timmons was represented by Walter G. Martin, a local attorney. Mr. Martin's law practice was a one man operation. His wife, Purple, served as his secretary and receptionist. Most of his clients were individuals like Mr. Timmons. Mr. Martin's work would best be classified as a general practice: domestic relation, adoptions, wills, disability, worker's compensaion and some personal injury. He was well recognized in the community as a competent attorney. The little advertising that he did indicated, "No

charge for first visit — terms available." The agreement between Mr. Timmons and Mr. Martin is included as Exhibit A-4.

BACKGROUND INFORMATION

The printing press, an 18 and 1/4 inch by 30 inch four-color wet offset press was sold by Hampton Tool Company to Holland with an initial deposit made in November 1977. Actual delivery was made in late October, 1978. Several other presses of the same type had been used at Holland for several years. However, they were not identical as Hampton had made changes in design as improvements were developed. The price of this press was specified as $330,600. Contract specifications are attached as Exhibit A-1. The press itself is shown in the center of Exhibit A-2.

Exhibit A-2 shows the machine's cutoff tower and the trim removal hoses which lead to the trim blower. For a number of years Hampton had purchased the trim blowers for their presses from Western. However, prior to the purchase of this press and subsequent to Holland's purchase of its preceding press from Hampton, Hampton's engineers had determined that a trim blower made by Eastern Fan Company would operate more effectively with this model press.

ACCIDENT SITUATION

Mr. Timmons was cleaning the paper from the trim blower when the injury occurred. The trim blower was running at the time, although the printing press had been turned off.

Periodically, and more frequently during winter months, the shredded paper clogged in the duct work on the outlet side of the trim blower. To prevent further jams, the press operator would open the outlet pipe to remove the blockage. This press (and trim blower) was new, having just recently been put into operation at Holland. The trim blower was of a different design from the others in the plant. When the blockage occurred, Mr. Timmons disconnected the outlet hose on the trim blower, and his fingers contacted the rotating blade while he was removing the blockage.

It was apparently characteristic of the exhaust system installed by Holland for their printing presses that they periodically jam up. No accurate record of jamming frequency is available. Jams had a record of occurring two to three times per week. However, no jam had occurred during May and June after the accident. Clearing of jams was a recognized part of an operator's job.

QUESTIONS

1. How would you apportion responsibility for the accident among: Mr. Timmons, Holland, Hampton, Eastern Fan?

2. What additional information would you like to have in order to better define your response to Question 1 above?

3. How do OSHA standards pertain to the accident situation?

4. What is a "worker's compensation claim"?

5. Discuss what warnings and guards, if any, you would consider appropriate for the trim blower.

6. Perform a conceptual design of a trim blower and exhaust system. Identify the primary variables influencing the sizing of the system.

7. The cross section of the outlet hose on the trim blower is much greater than the two flex inner tubes combined. Why did the blower backup occur in the outlet rather than the inlet?

PART A - EXHIBITS

A1 CONTRACT SPECIFICATIONS

A2 VIEW OF PRESS

A3 SCHEMATIC OF TRIM PAPER REMOVAL SYSTEM

A4 AGREEMENT BETWEEN MR. TIMMONS AND MR. MARTIN

****

Schedule - Names Associated with Exhibits

1. Timmons - Injured Worker
2. Holland - Timmons' Employer
3. Hampton - Press Manufacturer
4. Eastern - Fan Manufacturer
5. Martin - Timmons' Attorney
6. Moore - Hampton's Attorney

7. Western - Another Fan Manufacturer
8. Bradshaw - Plaintiff's Expert Witness
9. Burr - Defendant's Expert Witness
10. Hornsby - Hampton Safety Engineer

Contract Specifications
For
John Holland Company
xxx
For
18 1/4" X 30" Four-Color Wet Offset Press

The Hampton Tool Company proposes to furnish:

One 18/14" circumstance by 30" between bearers four-color wet offset press capable of printing four colors on the face or more on the back and three on the face, built in the following detailed specifications for the sum of----------$330,600.00

Prices quoted are considered firm for a period of 60 days from date of contract writing and beyond this point must be reaffirmed by a Company representative.

These prices are quoted under terms of payment as indicated and in agreement with sale conditions included on the following page:

F.O.B. our plant, xxxxx,xxx.
10% down payment with order - "check #44049 for $33,060.00 rec'd 11/30/77"
15% six months before delivery - "check #5917 for $49,590.00 rec'd 6/26/78"
75% net 30 days after delivery

Delivery will be made in January 1979, predicted on present production schedule. We are not to be responsible for delay in completion and delivery due to causes beyond our control.

The prices quoted do not include sales, use, excise or other similar taxes and if applicable, shall be paid by the Purchaser.

Cancellation or suspension of any order resulting from this quotation will be accepted only upon terms that will indemnify the manufacturer against loss.

Equipment will be released for shipment only after your representative has observed the product operating as to mutually agreed speed and quality on a trial run of a dummy job at manufacturer's plant.

An erector can be made available to supervise erection and for instructing operators at an extra charge.

Exh. A-1
(Retyped)

Under no circumstances shall the manufacturer be liable for loss of profits or other consequential damages, including personal injuries or property damage, relative to the equipment furnished as herein described.

We warrant our product to be of high quality workmanship and capable of performance in accord with the proposal for a period of six months after delivery, and we will replace any defective parts of our manufacture free of charge within said period of six months after delivery. This warranty is in lieu of all other warranties, express or implied, or merchantability or fitness for a specific purpose. No promise or affirmation of fact regarding capacity or performance not stated herein shall constitute a warranty by us or give rise to any liability or obligation on our part. We do not warrant items furnished by other manufactureres such as, but not limited to motors, controls, circuit boards, etc., and the purchaser in regard to such items shall rely solely upon the warranties of that manufacturer. We will aid the purchaser in requesting an adjustment to any such items if necessary.

The purchaser acknowledges this product, because of its use and operation, requires experienced and knowledgeable personnel in order to operate and maintain such in accordance with safe operational and maintenance procedures and to that end the purchaser assumes all responsibility.

The purchaser acknowledges that all of the instructional manuals, systems, safety devices, controls, warning plaques, and lettering have been seen and understood by purchaser and purchaser's personnel. As a part of the consideration paid the manufacturer for the product, the purchaser makes the following convenant with the manufacturer: that purchaser shall make sure at all times the product is used by purchaser either by its own personnel or employees or by its successors, transferees or assigns, that each person using the product is instructed fully in its proper use and safe use, that all safety devices and systems are strictly and without modification or alteration maintained as originally manufactured and all safety devices and systems used in accord with the manufacturer's instructions, and that all warnings and/or instructional plaques or lettering are kept clearly legible to anyone using the product; since failure on the part of the purchaser to perform any part of this convenant may give rise to claims against the manufacturer for personal injuries and/or property damage, the purchaser therefore shall indemnify and save and hold the manufacturer harmless for any and all claim or damages asserted against the manufacturer or paid by the manufacturer for personal injuries or property damage caused or contributed to by reason of the purchaser's failure to perform its convenant herein with the manufacturer.

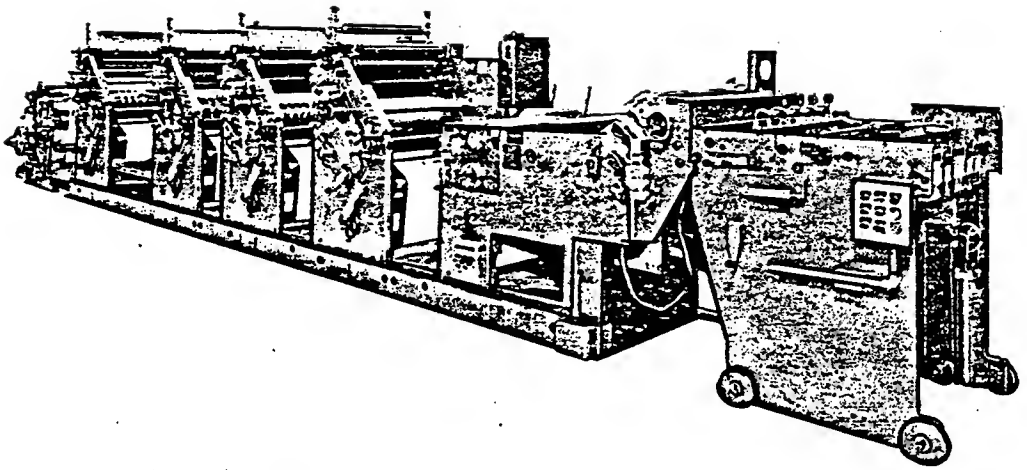
This quotation is made with the express understanding that all

specifications and drawings and/or the subject device will never be reproduced, duplicated or copied without written permission from the manufacturer.

Delivery to a carrier or licensed trucker shall constitute delivery to the purchaser and all risk of loss or damage shall be borne by the purchaser...

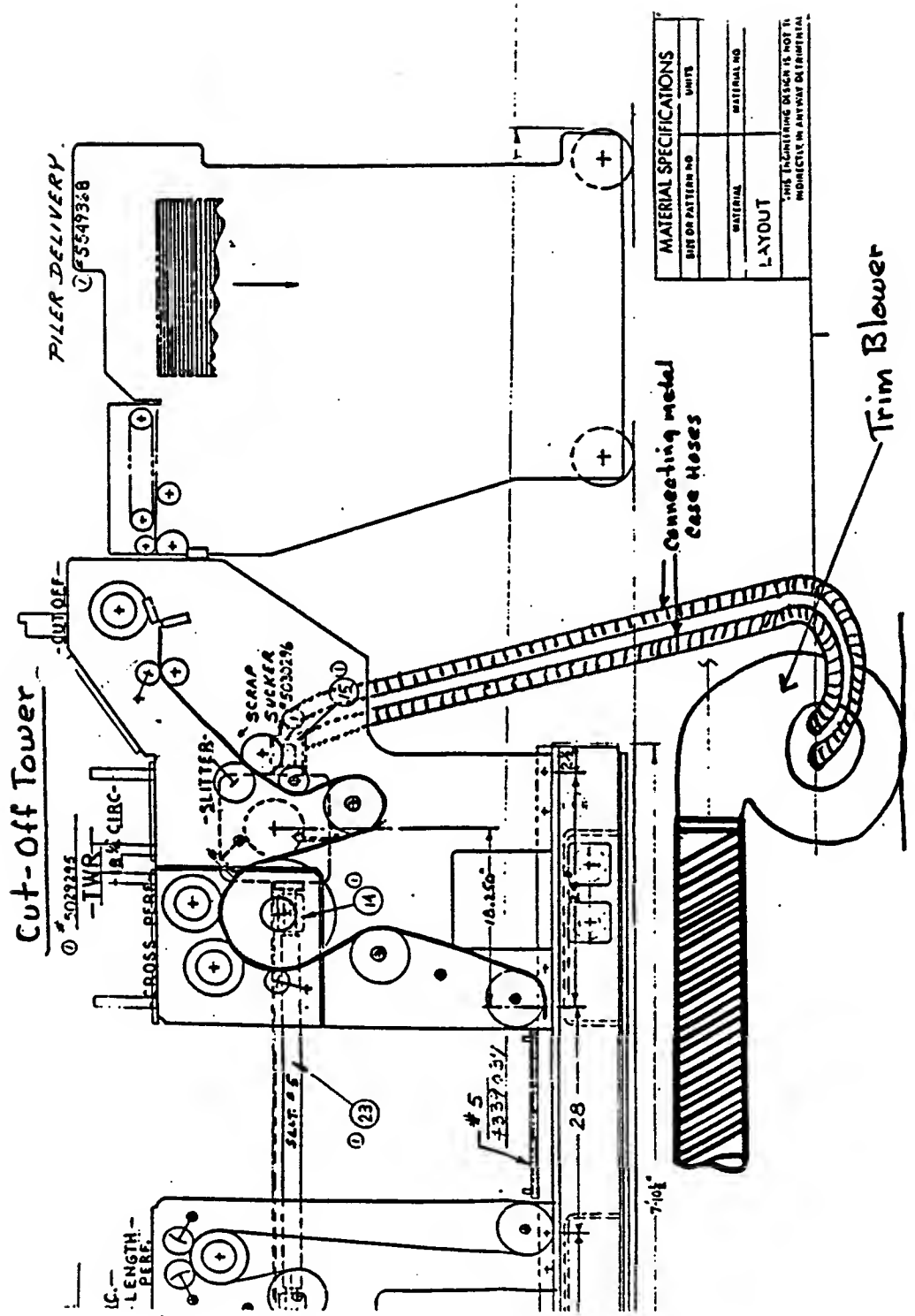
(Only appropriate part of the contract has been retyped).

Exh. A-1
(Retyped)



HIGH SPEED 4-COLOR CHECK PRESS

The use of four-color "scenic" checks has been made both possible and popular through the uses of check presses like the one shown. This 18¼" x 30" 4-color wet offset press is designed to operate at 750 feet per minute. It is equipped with an exclusive type of length perforating, cross perforating and cut-off piler. This is one of a number of Hamilton "scenic" check presses delivered recently.


Cut-Off Tower
PILER DELIVERY
CUTOFF
SLITTER
SCRAP SUCKER
CROSS PERF
LENGTH PERF
Connecting metal case Hoses
Trim Blower
MATERIAL SPECIFICATIONS
LAYOUT
28

Exh. A-3

STATE OF [redacted]
COUNTY OF [redacted]

I, the undersigned client, do hereby retain and employ [redacted] -(5) [redacted] Attorney at Law as my attorney to represent me in my claim (s) for damages before the Industrial Commission and/or a court of competent jurisdiction against the [redacted] Company, or any other person, -(2) firm, or corporation liable therefore for an accident that occurred on the 29th day of January, 1979.

I hereby agree to pay for the cost of investigation, and should it be necessary to institite suit, the court costs and any other expenses incurred in this action. As compensation for his services, I agree to pay my said attorneys from the gross proceeds of any recovery, the following fee:

$8,628.31 Wm OAS 3-28-79

20% Up to ~~$9,600.00~~; 33 1/3 % of all amounts over $9,600.00.

And I do further covenant and agree with [redacted] -(6) in consideration of his undertaking representation on my behalf, I will not attempt to effect settlement, or direct my attorney to terminate or "drop" the action or case without just cause without first compensating him on a quantum meruit ("value of services rendered") basis.

It is agreed and understood that this employment is upon a contingent fee basis, and if no recovery is made, I will not be indebted to my said attorney for any sum as attorney fees, provided that in any event I shall remain liable for all expenses incurred as result of my case.

Dated at [redacted] this 21ST day of February, 1979.

[redacted] (L.S.) -(1)

(L.S.)

The above employent is hereby accepted upon the terms stated herein.

[redacted] -(5)
Attorney at Law
[redacted] Highway
P. O. Box [redacted]
[redacted]
Telephone: [redacted]

Exh. A-4

HOW TO DESIGN, MANUFACTURE AND INSTALL AN UNSAFE BLOWER SYSTEM

PART B

EQUIPMENT INFORMATION

A worker suffered a serious hand injury when he was cleaning out a trim blower. Was he just careless or is the manufacturer of the blower guilty of producing a defective design? Was the equipment placed in service with inadequate warnings?

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PART B

EQUIPMENT INFORMATION

This printing machine is used in the first stage of printing checks. The checks are printed on a continous sheet of paper as it passes through the machine. In the cutoff tower of the machine, this sheet is trimmed, perforated and cut. Under normal operating conditions the trimming operation removes a one eighth to one quarter inch wide strip of paper from either side of the base sheet of paper. These trimmed strips of paper are pulled through a pair of flexible metal hoses of approximately one and a half inch diameter and into and through a common trim blower. Exhibit A-3 shows the metal hoses under the cutoff tower of the press. This blower performs the primary function of drawing the trimmed scrap away from the printing press. It also cuts the trimmed scrap into smaller lengths.

According to the specifications of the contract between Hampton and Holland for the purchase of the machine, the press will operate continuously at a paper speed of 600 feet per minute with 30 inch wide paper.

Exhibit B-1 shows photographs of the trim blower. The arrangement shown in these Figures is essentially the same as it was at the time of an inspection of the site by an engineering expert on June 22, 1979. The scrap exits from the blower through a four inch diameter flexible hose. The blower has a six inch diameter exhaust port. Hence a reducer in the shape of truncated cone is located between the blower and the hose. This arrangement is sketched in Exhibit B-2. Also shown in Exhibit B-2, the hose connects to a four inch diameter PVC pipe which in turn connects by way of a "T" coupling to an overhead PVC header. This header runs the length of the building and takes scrap from a series of printing presses similar to the one in question. The header runs scrap to a location outside of the building for further disposal without any additional boosting.

The exhaust system arrangement at the time of Mr. Timmons' injury differed somewhat from the arrangement as it was observed by the engineering expert who took the pictures seen in Exhibit B-1. Certain modifications had been made by plant personnel at Holland Company subsequent to Mr. Timmons' injury. The arrangement as it existed at the time of the accident is sketched in Exhibit B-3. A six inch diameter flexible hose ran from the blower exhaust port through a reducer into the four inch diameter PVC pipe. It is unclear how the rubber hose was connected to the blower.

The electrical connection of the blower to the Hampton press had been changed by Holland Company prior to the accident. The "on-off" switch for the trim blower mounted on the Hampton console was disconnected and Holland added a knife switch to the rewind end, outside the main electrical control cabinet so that the trim blower can remain running when the press is completely shut down. The knife switch is within three feet of the trim blower for access by the operator. It is fused with a total of three FRN20 fuses, one in each of the three phases lines. The Hampton starter, which is no longer used, was furnished with N20 overloads which are the proper size for the blower to operate on 208 volts, 3 phase 60 cycle current at 3.4 amps. Luther Hornsby, Hampton's vice-president and director of customer service, in his deposition indicated that the Eastern Fan trim blower was selected from a catalog for inclusion in their system and that the decision to switch from Western to Eastern Fan was based on Eastern Fan's ability to handle a higher volume.

QUESTIONS

1. Does the information in this part alter your opinion as to who is responsible for the accident? In what way?

2. How could the trim removal system be redesigned for a higher level of safety?

3. Are Holland's post-accident modifications effective as safety features?

4. Would Holland's post-accident modifications be effective in reducing the number of jams? If so, why? If not, why not?

5. Redesign the trim removal system for elimination of jams and for increased safety.

6. Are the characteristics of a squirrel cage blower appropriate for this application?

PART B - EXHIBITS

B1 PHOTOGRAPHS OF THE TRIM BLOWER

B2 EXHAUST SYSTEM AS OBSERVED BY ENGINEER ON JUNE 22, 1979.

B3 EXHAUST SYSTEM AS IT WAS AT TIME OF ACCIDENT

****

Schedule - Names Associated with Exhibits

1. Timmons - Injured Worker
2. Holland - Timmons' Employer
3. Hampton - Press Manufacturer
4. Eastern - Fan Manufacturer
5. Martin - Timmons' Attorney
6. Moore - Hampton's Attorney
7. Western - Another Fan Manufacturer
8. Bradshaw - Plaintiff's Expert Witness
9. Burr - Defendant's Expert Witness
10. Hornsby - Hampton Safety Engineer

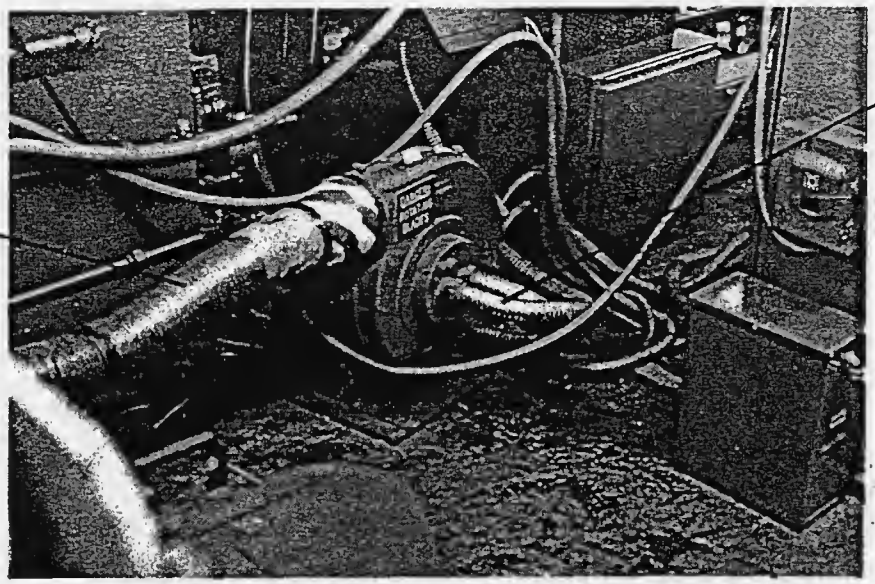


FIGURE 1

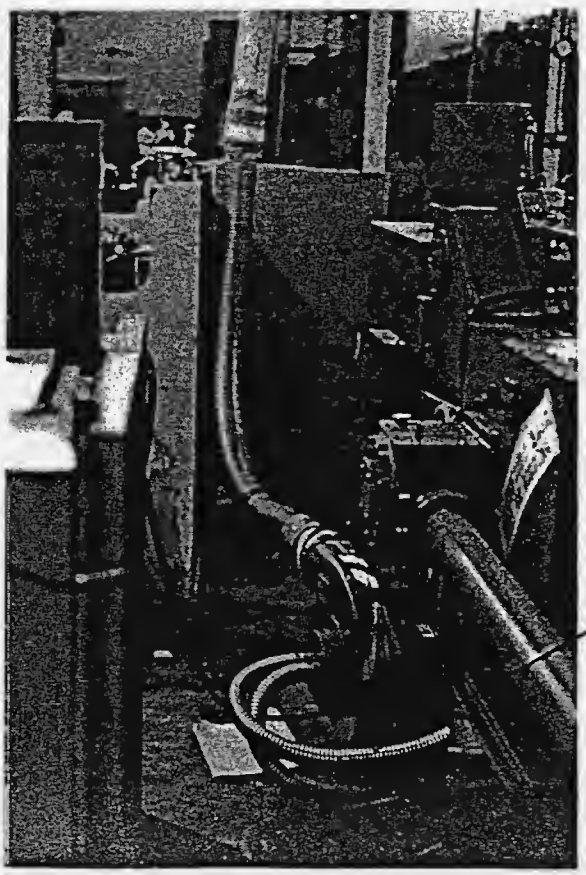


FIGURE 2

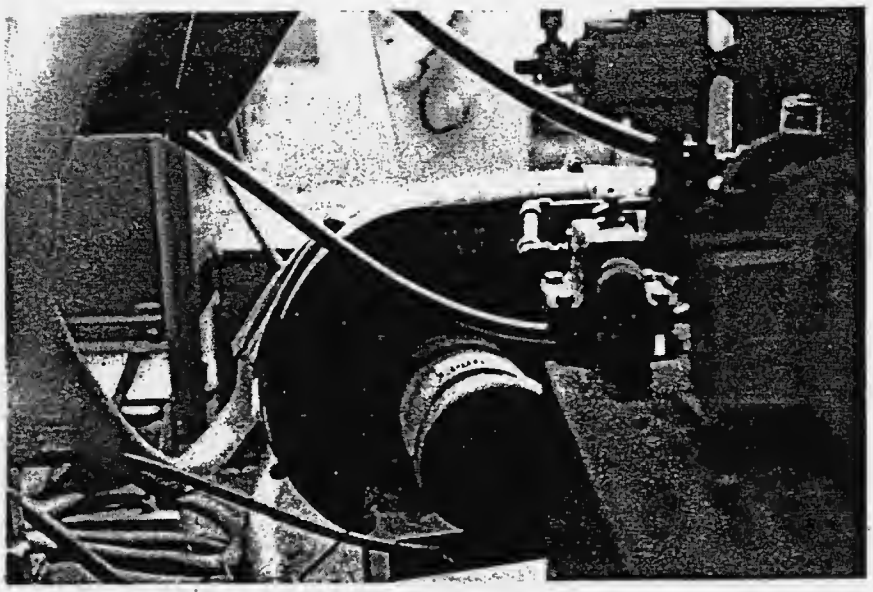


FIGURE 3

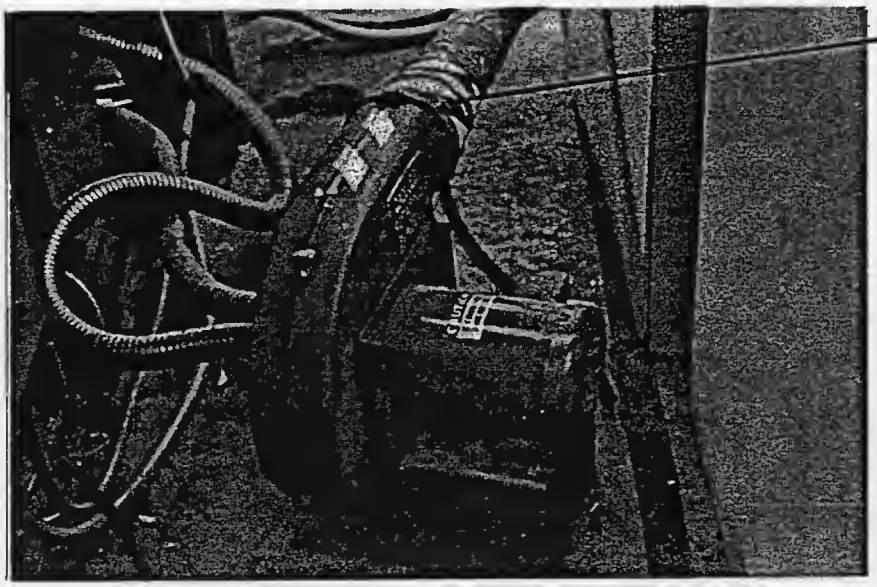


FIGURE 4

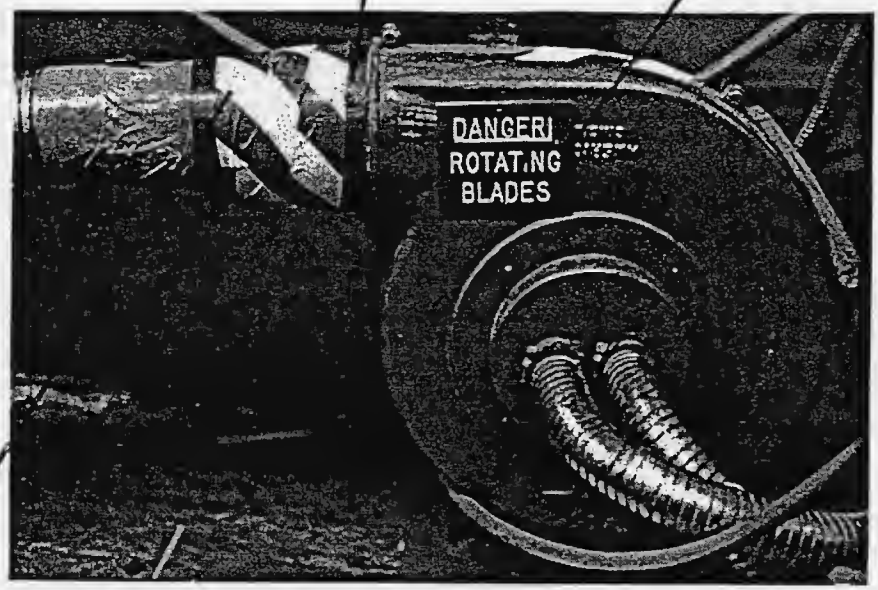


FIGURE 5

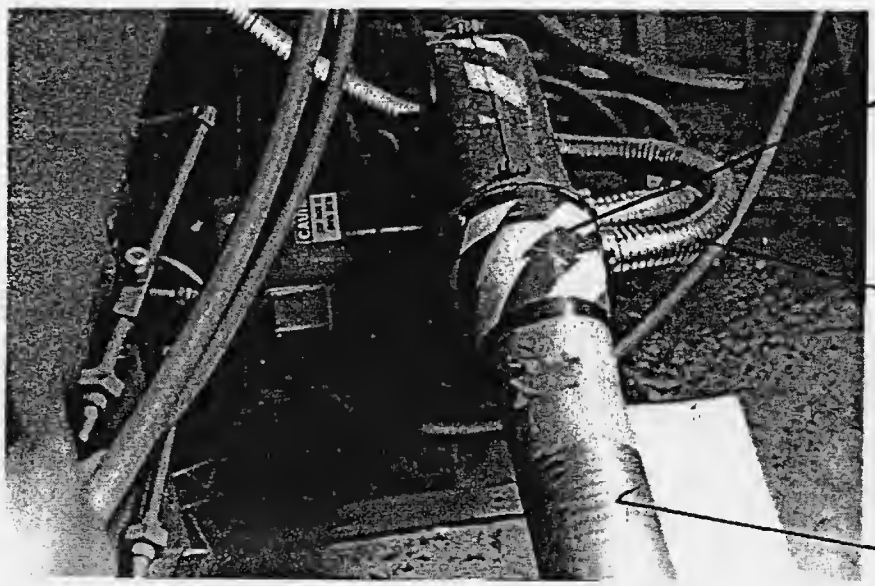


FIGURE 6

FIGURE 7

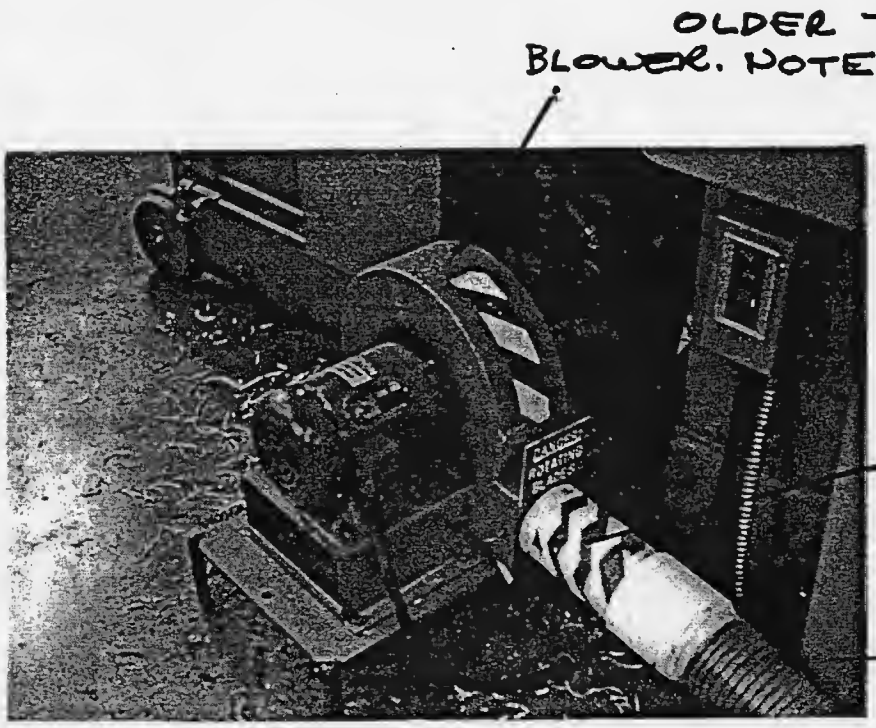
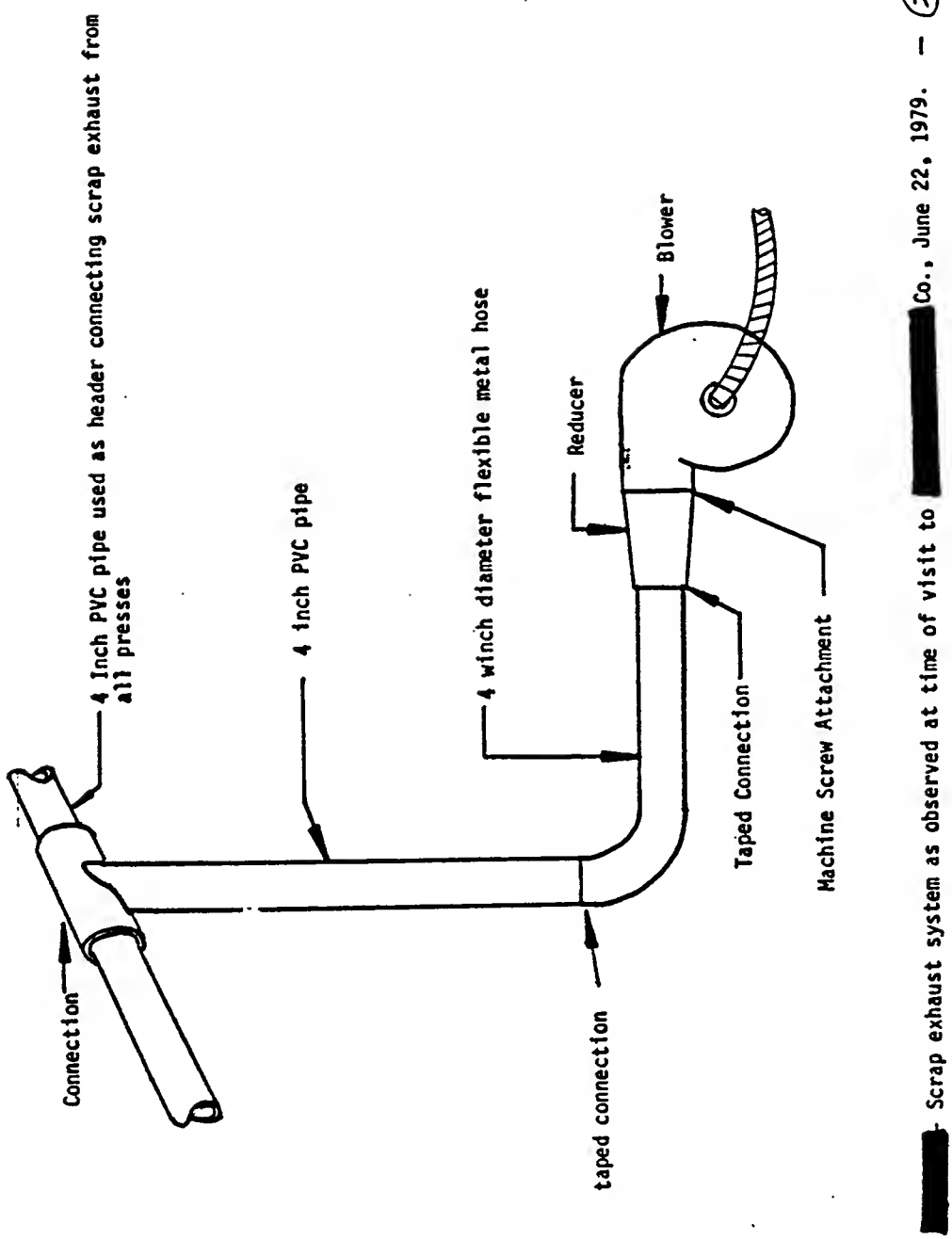
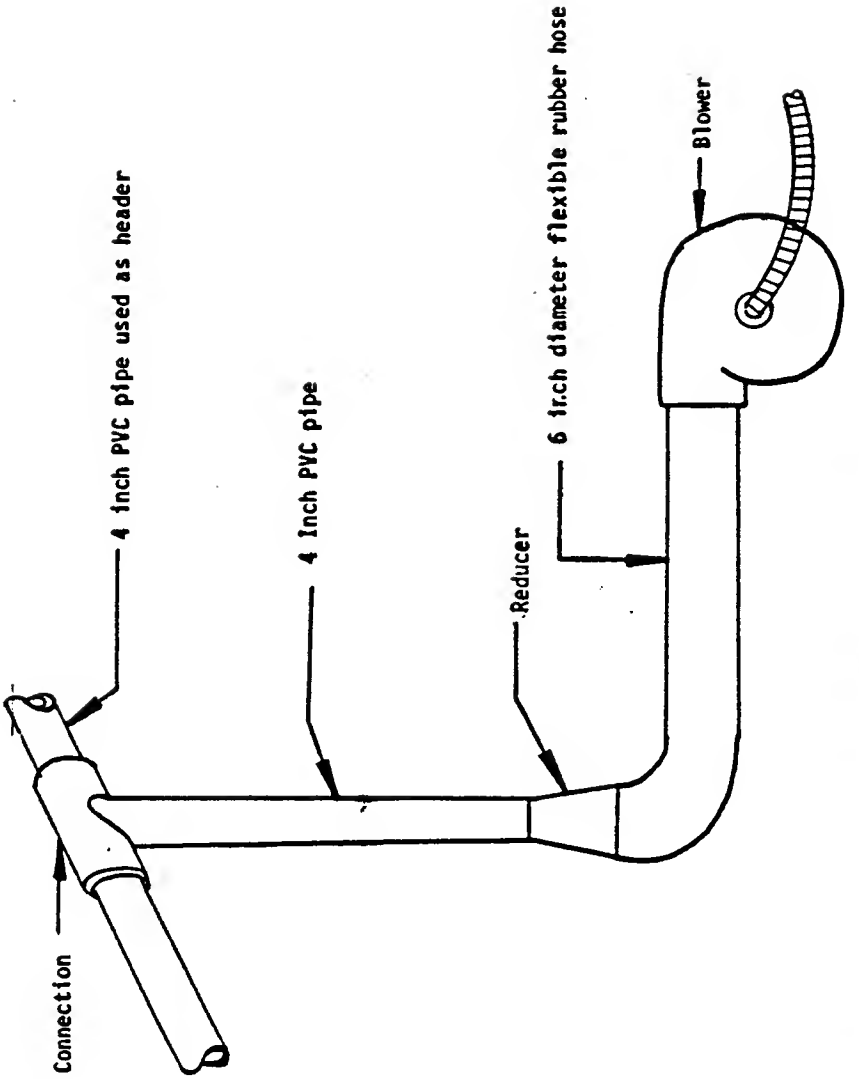


FIGURE 8

Exh. B-1


4 Inch PVC pipe used as header connecting scrap exhaust from all presses
4 inch PVC pipe
4 winch diameter flexible metal hose
Reducer
Blower
Taped Connection
Machine Screw Attachment
Connection
taped connection
Scrap exhaust system as observed at time of visit to Co., June 22, 1979. - (2)

Exh. B-2



Sketch of exhaust system at the time of the accident

Exh. B-3

HOW TO DESIGN, MANUFACTURE AND INSTALL AN UNSAFE BLOWER SYSTEM

PART C

PLAINTIFF'S CASE

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PART C

I. PLAINTIFF'S CASE

After the accident, Mr. Timmons, through his attorney Mr. Martin, engaged the services of Prof. Bradshaw, a mechanical engineering professor at a nearby State University. Prof. Bradshaw had taught at State University, which is also in his home town, and had received his degrees there as well. He had twenty years of experience investigating industrial accidents, and was well known throughout the legal community of the state for his services in investigating accidents and injuries. Prof. Bradshaw visited the Holland Plant in September, 1979 and issued his report in November, 1979.

Prof. Bradshaw's report is included as an Exhibit C-1. His specific conclusions are:

> "The proximate cause of this accident was the failure of the manufacturer to design and manufacture a trim blower with a sufficiently long outlet to put the rotating cutter reel blades out of reach in the event someone would be placing his hand into the outlet port.
>
> "Further, the manufacturer was negligent in that he failed to warn the operator of the potential danger from the cutter reel. Properly worded, easily-read warning notices were necessary to warn the operator of the closeness of the rotating blades to the opening.
>
> "Finally, despite the possible claims that Mr. Timmons may have taken undue risk in unclogging the outlet while the blower was running, it remains that the manufacturer had the last clear chance to prevent injury to Mr. Timmons by designing the outlet of the new machine with greater distances between the outlet and the rotating blades as in the older machine to which he had become accustomed".

Mr. Timmons and his wife through their attorney, Mr. Martin, filed suit against Hampton and Eastern Fan. A copy of the "Complaint" is included as Exhibit C-2. (A complaint is a legal document effectively initiating a lawsuit). It claimed that:

- The trim blower was not reasonably fit for its intended use and not of merchantable quality.
- The design and manufacturer was careless and negligent due to the failure to provide the trim blower with appropriate

barriers, safety interlocks, and warnings that would prevent employee contact with a rotating blade of the fan.

- The printer and the blower were sold in a defective and unreasonably dangerous condition.

As the lawsuit developed, attorneys representing the defendants, Hampton and Eastern Fan, arranged for the deposition of Prof. Bradshaw. (A deposition is a sworn interview conducted by the opposing attorneys. Contents of depositions can be read at trial). This deposition was held at the offices of one of the defense attorneys and a court reporter was present to record all that was said. Exhibit C-3 is a letter from Hampton Tool to the defense attorney suggesting questions to be posed to Professor Bradshaw. This deposition was quite long (111 pages) and only excerpts are included as Exhibit C-4.

QUESTIONS

1. Do the information and arguments presented by the plaintiff's expert influence your opinion on the respective liabilities of the parties? If so, how would you now assign responsibility?

2. In your opinion should it be required that the trim blower be manufactured with a sufficiently long outlet to put the blades out of reach of one's fingers? Give the basis for your opinion.

3. Should it be required that specific warnings be placed on the trim blower? If so, how would you word them? What would the label be made of? What size should letters be of/each word? What symbols? What colors?

4. How was the blower casing probably manufactured? What cost would be added if the long outlet were made a part of the casing?

PART C - EXHIBITS

C1 PROF. BRADSHAW'S REPORT

C2 COMPLAINT

C3 LETTER DATED FEBUARY 13, 1985 HAMPTON TOOL TO MR. MOORE

C4 EXCERPTS FROM PROF. BRADSHAW'S DEPOSITION

****

Schedule - Names Associated with Exhibits

1. Timmons - Injured Worker
2. Holland - Timmons' Employer
3. Hampton - Press Manufacturer
4. Eastern - Fan Manufacturer
5. Martin - Timmons' Attorney
6. Moore - Hampton's Attorney
7. Western - Another Fan Manufacturer
8. Bradshaw - Plaintiff's Expert Witness
9. Burr - Defendant's Expert Witness
10. Hornsby - Hampton Safety Engineer

ECL 266C

[redacted]

ATTORNEYS AND COUNSELORS AT LAW

POST OFFICE BOX [redacted]

[redacted]

August 26, 1980

[redacted]

OF COUNSEL

TELEPHONE: [redacted]
AREA CODE [redacted]

OFFICES:
[redacted] FLOOR
[redacted] BUILDING
[redacted] STREET

[redacted] — (9)

P. O. Box [redacted]

Re: [redacted] vs. [redacted] Tool Co. — (1) (3)
File No. [redacted]

Dear [redacted] — (9)

I am herewith enclosing for your files a copy of Dr. [redacted] deposition, the deposition of the plaintiff and Dr. [redacted] report. — (8) — (8)

We see no further work for you to do on this matter until it is set for trial. At that time we will have to arrange for a conference to prepare you for trial.

If there is anything further you feel we need to do, please advise.

Very truly yours,

[redacted] — (6)

[redacted]

enclosures

Exh. C-1

REPORT OF INVESTIGATION TO DETERMINE THE CAUSE OF AN ACCIDENT INVOLVING A BLOWER TRIMMER MANUFACTURED BY THE [redacted] FAN COMPANY, [redacted]

by

[redacted] Lane

—(8)

November 27, 1979

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ABSTRACT

An inspection was made of the machine on which Mr. [redacted] - (1) [redacted] was injured while in the course of his work at the [redacted] - (2) [redacted] Company, [redacted] Measurements were made and photographs of the trim blower were taken. Discussions were conducted with Mr. [redacted] Attorney for Mr. [redacted] and with the plant- (5), (1) manager at the [redacted] Company. Critical measurements of distances - (2) from the outlet to the cutting reel were taken by [redacted] Based - (5) on the foregoing and on knowledge of the nature of operation of the blower in question, the following is concluded:

The proximate cause of the accident was the manufacturer's failure to design and manufacture a trim blower with a sufficiently long outlet to put the rotating blades out of reach of one's fingers.

Further, the manufacturer was negligent in that he failed to warn the operator of the potential danger from the cutter reel. Properly worded, easily read warning notices were necessary to warn the operator of the closeness of the rotating blades to the opening.

The manufacturer had the last clear chance to prevent injury to Mr. [redacted] by designing the outlet of the new machine with greater - (1) distances between the outlet and the rotating blades as in the older blower to which he had become accustomed.

(8)

November 27, 1979

INVESTIGATION OF ACCIDENT INVOLVING MR. [redacted] INJURED ON A - (1)
TRIM BLOWER AT THE [redacted] COMPANY, [redacted]. - (2)

Introduction and Background

On September 27, 1979 at the request of Mr. [redacted], - (5)
Attorney at Law, [redacted] Highway, [redacted], I inspected a
trim blower on which Mr [redacted] was injured while performing - (1)
his duties as a printing and cutting press operator at the
[redacted] Company in [redacted]. (2)

It is my understanding that on January 29, 1979, Mr. [redacted] in - (1)
the course of his work at a web offset press, removed the hose from
the outlet of a trim blower, manufactured by the [redacted] Fan Co., - (4)
[redacted], and then reached into the outlet to dislodge paper
trimmings which were clogging the outlet. He did this in the way in
which he had dislodged paper trimmings from a previous model trim
blower. However, the cutter reel in the new model trim blower crushed
the index finger and cut off the ends of the remaining fingers.

Further, it is my understanding that the warning shown in Figure 5
was not in place at the time of the accident and that the screws
identified in Figures 4, 5, and 6 were not in place on the new blower
at the time of the accident, making removal of the hose easy. These
conditions made it highly probable that one unclogging paper from the
outlet would be injured because of the nearness of the opening to the
cutter reel.

Finally, it is my understanding that the [redacted] Company safety - (2)
rules prohibiting (in Rule 1) the matter of cleaning or repairing
machines while they are in motion were issued on February 20, 1979
after the accident occurred on January 29, 1979.

Inspection and Discussion of Results

Two trim blowers were inspected. One was the trim blower on which
Mr. [redacted] was injured, while the other was an earlier trim blower - (1)
replaced by the one involved in the accident. A dimensioned sketch
was made of the blower involved in this accident. At my request and
at a later time, Mr. [redacted] made measurements on both blowers - (5)
to determine on each the distance from various points on the discharge
outlets to points on the cutter reel (rotor). See Figure 9.

Photographs were made of both blowers. Figures 1, 2, 3, and 4
show general views of the blower on which Mr. [redacted] was injured. - (1)
These show connections which were not on the blower at the time of
the accident. (Again, see Figure 9 for the nature of the connection
at the time of the accident.)

Figure 9 depicts how the accident most probably occurred. Owing to the short distance from the discharge opening to the blades of the cutter reel, the probability of injury when one unclogs paper trimmings becomes very high. This probability was made even higher by the fact that Mr. [redacted] had become accustomed to unclogging a model blower trimmer which had a considerably greater distance from the outlet to the cutter reel blades. See Figures 7 and 8. In effect, his accident-free experiences in unclogging the earlier blower conditioned him to accept the procedure as safe--and it was apparently safe for him so long as sufficient distance between cutter (rotor) blades and the opening existed. The procedure became for him a personal stereotype. — (1)

When the new blower, with considerably shorter distance from the discharge opening to the blades, replaced the old blower, Mr. [redacted] apparently did not perceive the difference. Acting under the now stereotyped impression that he was safe by virtue of sufficient distance, his fingers contacted the cutter reel as he attempted to unclog the system and suffered the injuries already described. — (1)

Despite the fact that this unclogging procedure might be classified by some as an "unsafe act" or human error, it is, in fact, a design error in that the manufacturer ought to have foreseen that clogging of the outlet was highly probable and that in a production situation the probability that one would unclog the blower while it was running was high. Further, the manufacturer should have foreseen that with the short distances shown in Figure 10A, injuries to fingers were highly probable.

In Figures 1 and 5 note the warning tape and warning notices which were added after the accident. In Figures 5, 6, and 10, note the 3-1/2" long transition piece between the blower outlet and the flexible hose. Note that this transition piece is held securely to the blower outlet by socket head screws. Since the flexible tube is apparently secured to the transition piece with removable duct tape giving access at that end, the probability of one's getting his hand caught in the cutter reel (rotor) is very remote because of the increased distance from the opening at the end of the transition piece to the cutter reel blades. (Refer to Figure 10.) Had the new blower been equipped with a permanently installed transition piece as shown in Figure 10B, it would have been highly improbable that Mr. [redacted] would have been injured when he was unclogging the outlet of the transition piece, owing to the greater distance. — (1)

While it may be contended that Mr. [redacted] took undue risk in attempting to clear the obstruction while the blower was in operation, it remains that the manufacturer had the last clear chance to prevent injury to him by designing the outlet of the new machine with longer distances between outlet and rotor blades as in the older machine to which Mr. [redacted] was accustomed. — (1) — (1)

Conclusions

Based on information furnished, knowledge of the nature of functioning of a trim blower, and upon results of an inspection of the machine involved, the following is concluded:

The proximate cause of this accident was the failure of the manufacturer to design and manufacture a trim blower with a sufficiently long outlet to put the rotating cutter reel blades out of reach of one's fingers.

Further, the manufacturer was negligent in that he failed to warn the operator of the potential danger from the cutter reel. Properly worded, easily read warning notices were necessary to warn the operator of the closeness of the rotating blades to the opening.

Finally, despite possible claims that Mr. [redacted] may have taken undue risk in unclogging the outlet while the blower was running, it remains that the manufacturer had the last clear chance to prevent injury to Mr. [redacted] by designing the outlet of the new machine with greater distances between the outlet and the rotating blades as in the older machine to which he had become accustomed. - (1) - (1)

View of older blower which Mr. Timmons cleared without harm or injury (compare with figure 10A).

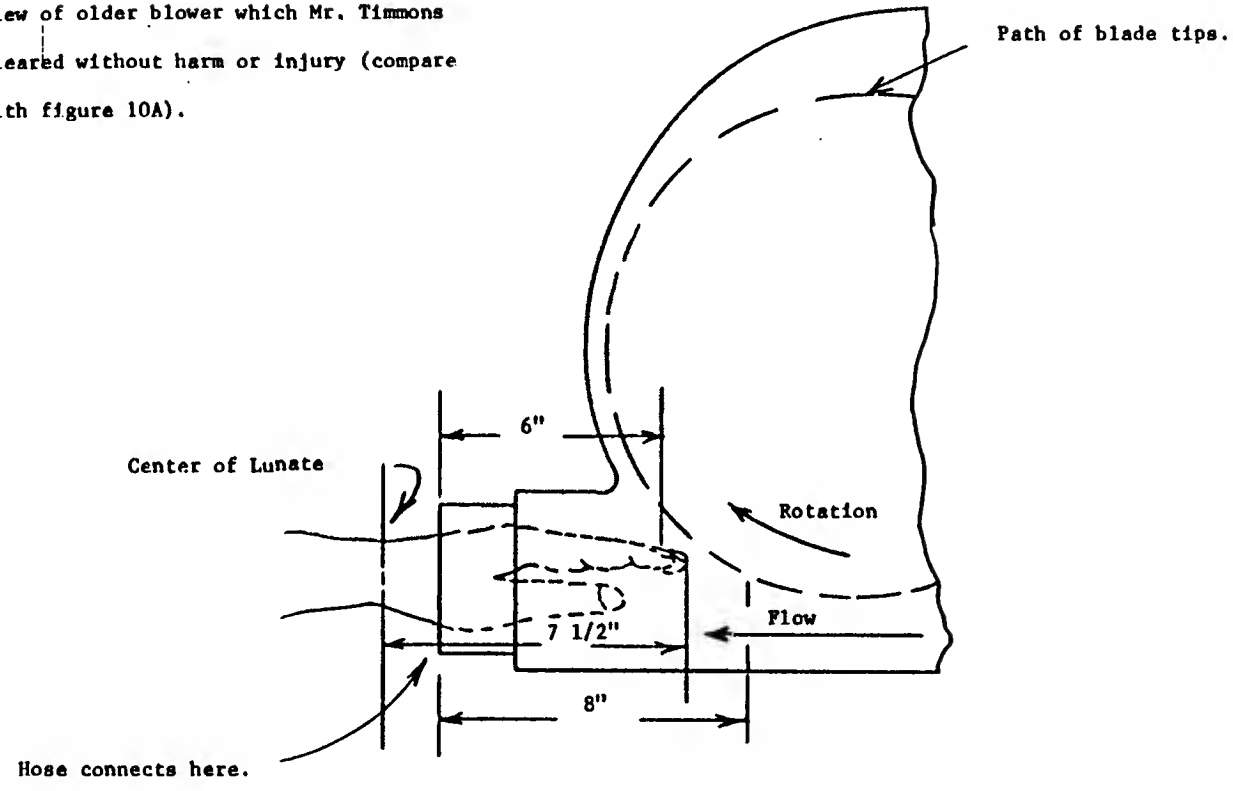


Figure 9

NOTE: For Figures 1 through 8, refer to Exh. B-1.

View of Blower at the time of the accident showing consequence of a short distance between the opening and the rotating bledes.

Note: At time of accident a short transition piece connected the hose to blower. There were no screws.

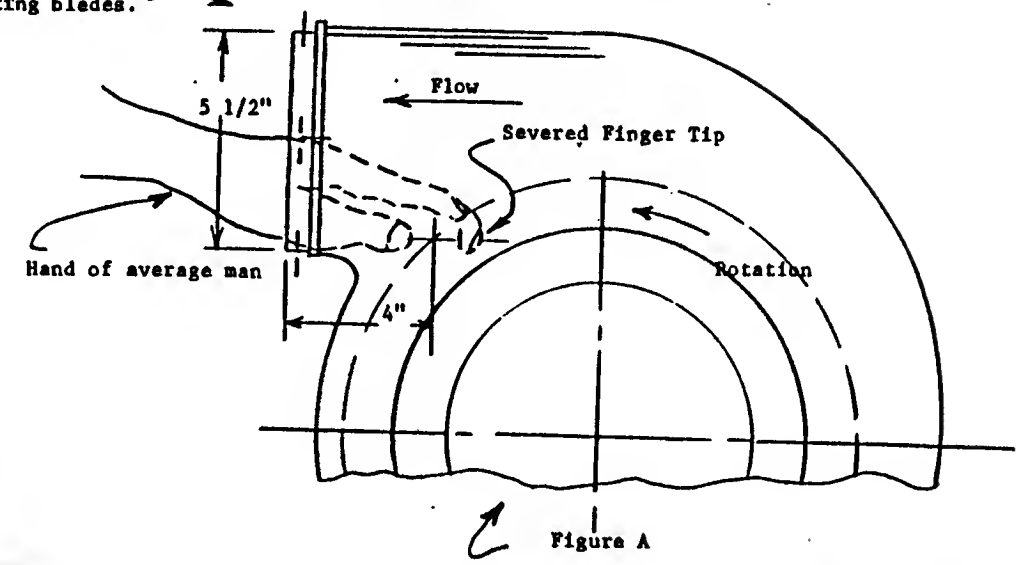
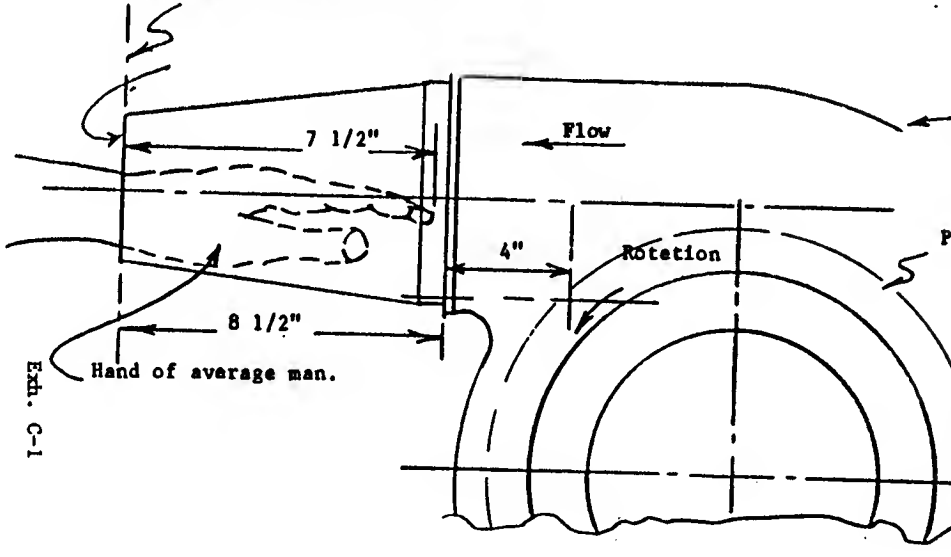


Figure A

Center line of lunate.
Opening of transition piece.



View of blower with long transition piece. A safer design.

Pattern of blade tips

Scale: 1/4th size

Figure B

Figure 10

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ECL 266C

STATE OF [redacted])
COUNTY [redacted]) IN THE COURT OF COMMON PLEAS

[redacted] - (1)

PLAINTIFF,

VS

COMPLAINT

THE [redacted] TOOL COMPANY - (2)

DEFENDANT.

The Plaintiff, complaining of the Defendant above-named, would respectfully show unto this honorable court:

FOR A FIRST CAUSE OF ACTION

1. That the Plaintiff is a resident and citizen of the State of [redacted] County of [redacted]; and at all times relevant to the matters set forth herein, was employed by The [redacted] Company of [redacted] County, - (2) [redacted] as a printing and cutting press operator; that the Defendant, The [redacted] Tool Company, is, on information and - (3) belief, a corporation organized and existing under the laws of the State of [redacted] is doing business in the State of [redacted]

2. That at all times hereinmentioned the (3) Defendant, the [redacted] Tool Company was engaged in the manufacture distribution, and sale, inter alia, of printing presses, including a web offset press bearing serial number [redacted] with an attached paper cutter and blower.

3. That on or about the 29th day of January 1979, the Plaintiff was operating the above described web offset press which had been sold to and installed on the premises of (2) The [redacted] Company in the course of his employment. That on that date, as the Plaintiff was operating the machine for the uses and purposes for which it was intended and in a safe, appropriate, and proper manner, the Plaintiff attempted to clear a waste paper jam in the trim blower outlet in the same manner as he had done with a previous model machine installed on the premises

by the Defendant when the cutter reel crushed his index finger and cut the end off his other three fingers of his left hand, causing the Plaintiff to suffer severe, permanent, disabling, and painful injuries as well as permanent disfigurement and scarring; causing him loss of time and wages from work and the diminuition of ability to earn a living, as well as extreme and debilitating pain and suffering.

4. That the injuries sustained by the Plaintiff were the direct and proximate result of carelessness, negligence, willfulness, wantoness, and gross negligence of the Defendant in one or more of the following particulars:

a. That the Defendant was grossly negligent in the design, manufacture, assembly, testing, and the inspection of the said printing press and trim blower;

b. The Defendant was grossly negligent in failing to warn, instruct, adequately warn or adequately instruct the Plaintiff concerning the dangerous and defective design, assembly, testing and inspection of said printing press and trim blower, and that it would be likely to severely injure him when used for the purpose it was intended, when it knew or in the exercise of due care should have known, that the employees of companies such as the [redacted] Company and - (2) especially the Plaintiff, were ignorant of said dangerous and defective characteristics;

c. That the Defendant grossly negligently disposed of said printing press and trim blower and placed said press and blower in the channels of trade, when the Defendant knew or with reasonable care should have know said press and

trim blower could be dangerous and defective in nature and design, or in a dangerous and defective condition, and grossly negligently placed said printing press and trim blower in the channels of trade in a manner in which the Defendant foresaw, or in the exercise of reasonable care ought to have foreseen, would probably carry said press and trim blower into contact with a person such as the Plaintiff who is ignorant of the dangerous and defective nature and condition of said printing press and trim blower, and negligently failed to use reasonable care to prevent injury to such persons, including the Plaintiff.

5. As a direct and proximate result of the gross, willful, and wanton negligence of the Defendant, The [redacted] Tool Company, as hereinabove set forth, the Plaintiff (3) suffered the injuries and damages as set forth above, all of which have and will in the future cause him to incur medical and hospitalization expenses and expenses for further medical treatment; he has suffered permanent disfigurement and scarring; his ability to work and earn income has and will continue to be permanently impared; his activities have been restricted; his disfigurement has caused him to withdraw and shun his friends and acquaintances, and his ability to live a normal life has been adversely affected.

FOR A SECOND CAUSE OF ACTION

6. The Plaintiff repeats and realleges the matters contained in his First Cause of Action as fully as if alleged below.

7. That the Defendant expressly and impliedly warranted to the general public and to the Plaintiff in particular

that the aforesaid printing press and trim blower was safe, and fit for the use for which it was intended; that the Defendant breached its warranty to the Plaintiff because said product was unsafe, and unfit fortthe purpose and use for which it was intended; that the Plaintiff relied on the warranties made by the Defendant, and was caused to suffer severe personal injury as set forth above as the direct and proximate result of the breach of said warranties by the Defendant and that due notice has been given Defendant of its breach of warranty. . . . . .

8. That as a direct and proximate result of the breach of warranty the Defendant as here and above set forth, the Plaintiff suffered the injuries and damages as set forth in his First Cause of Action. . . . . .

FOR A THIRD CAUSE OF ACTION .

9. The Plaintiff herein repeats and realleges the matters contained inthis First and Second Causes of Action as fully as if repeated and realleged below.

10. That the Defendant installed the printing press and trim blower described above which was in a defective condition and dangerous to the user thereof in the premises of The [redacted] Company; that said product was defective (2) and dangerous at the time when it was sold by the Defendant; that said defective and dangerous condition proximately caused the above described injury while the product was used for its ordinary and intended purpose and in the ordinary and intended manner; and that the injuries suffered by the Plaintiff were the direct and proximate result of the sale and the installation in his employers premises by the Defendant of said defective and unreasonably dangerous product. . . .

11. That as a direct and proximate result of the aforesaid acts of the Defendant, [redacted] Tool Company, (3) as hereinabove set forth, the Plaintiff suffered the injuries and losses as set forth in his First Cause of Action.

12. That, because of the matters as set forth above, the Plaintiff is informed and believes that he is entitled to judgement against the Defendant in the sum of Five Hundred

Thousand and no/100 ($500,000.00) dollars, actual and punitive damages.

WHEREFORE, Plaintiff prays for Judgement against the Defendant in the amount of Five Hundred Thousand and no/100 ($500,000.00) Dollars, actual and punitive damages; for the costs and disbursements of this action; and for such other and further relief as the Court may deem just and proper.

/s/ [redacted] - (5)
[redacted]
Attorney for the Plaintiff
P. O. Box [redacted]
[redacted]

March 5, 1979

STATE OF [redacted}
COUNTY OF LEXINGTON } VERIFICATION

BEFORE ME personally appeared [redacted] - (1) [redacted], who, being first duly sworn, deposes and says that he is the Plaintiff in the above entitled action; that he has read the forsgoing Complaint and allegations contained therein are true of his own knowledge, except those matters and things therein stated on information and belief, and those he believes to be true.

/s/ [redacted] - (1)

SWORN TO BEFORE ME THIS
5th day of March, 1979.

/s/ [redacted]
NOTARY PUBLIC FOR [redacted]
My Commission expires: [redacted]

Hampton-Roll Fed Printing Presses and Collators
February 13, 1980

Mr. Xxxx
Xxxxxx, Xxxxxx, Xxxxx & Xxxxxxxxxxx
Attorneys and Counselors at Law
Post Office Box xxxxx
Xxxxxxxx, Xxxxx Xxxxxxxx XXXXX

Dear XXXX:

This will confirm our phone conversation concerning the Holland press law case. You had stated you were to depose a Dr. Bradshaw who is the expert for the plaintiff. We suggested the following questions:

1. If the purpose of the plaintiff was to unclog the fan, couldn't he still reach the blades even with the proper extension on the fan?

2. How can you reach the fan blade with the inlet and oulet ducts attached as they are when being used for trim removal?

3. When working on a driven rotating mechanism, don't you normally stop the unit prior to working on it?

4. Would you disassemble an ordinary 110 Volt wall switch in your home without turning the power off?

5. An ordinary mixer used in your kitchen must be stopped before you remove the beaters.

6. We assume that you are going to challenge Dr. Bradshaw credibility in the area of fan and trim removal systems.

One other item which we discussed by phone was that the switch that we furnished originally for the fan was just an "On - Off" switch and any time the main drive power on the press and this fan "on-off" switch was in the "On" position, the fan would rotate. This switch is not in the circuit now, as Holland has installed a switch on the electrical components panel at the gear side of the press which is wired direct into their power leads, so that the fan can be turned on or off regardless of the drive of the press.

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(Retyped)

I think this outlines our discussion. Should you have any questions, please let me know.

Kind regards,

xxxxxxxxxxx, Vice President
Director of Customer Service

Exh. C-3
(Retyped)

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF [redacted]

[redacted] DIVISION

(1) [redacted],	)	79-636
Plaintiff,	)	
vs.	)	DEPOSITION OF: [redacted] (8)
(3) [redacted] Tool Company,	)	
[redacted] Fan Company, (4)	)	
Defendants.		

Pursuant to notice of deposition and/or agreements in the above entitled case, a deposition was taken on the 12th day of February, 1980, attended by counsel as follows:

APPEARANCES:

(5) [redacted] Esquire,

ATTORNEY FOR THE PLAINTIFF,

(6) [redacted], Esquire, of the firm of [redacted]

ATTORNEY FOR [redacted] TOOL COMPANY

[redacted] Esquire, of the firm of [redacted] and [redacted]

(4) ATTORNEY FOR [redacted] FAN COMPANY.

DEPOSITION REPORTED BY [redacted]

Q. Does it contain any tests and their results that you might have done relative to this case?

A. I did no tests.

Q. Does it contain any inspections or observations in their relativity concerning this case?

A. Yes.

Q. Do you plan to do any tests?

A. Not unless I'm asked to do so. Not on my account would I do it.

Q. Do you plan to do anything further that you can think of that would relate to your opinions?

A. No, sir. If it comes to trial, I'll simply prepare for trial by reviewing what I have already done.

Q. Would you advise us if you do anything that would effect significantly your opinions and your basis for your opinions?

A. Yes, I will.

Q. I'm talking about in regards to tests or further inspections or further studying and anything of that nature.

A. Yes, sir.

Q. (8) [redacted] could you show us in your curriculum vitae what in your opinion relates to the designing of a housing of rotary blades?

A. Yes, sir.

Q. Let me, may be we can do it at one time, to the

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designing of a housing for rotary blades and/or preparing warnings for such housing and if there is an area tell us how it relates to it.

A. All right. There is more than one area. My area of concentration is mechanical design or machine design. I teach courses in that area. I have done research in that area. I have done consulting in that area. I also teach a course in safety engineering where the emphasis is put on designs for safety and of course the subject matter deals with all types of machinery including blowers and similar devices.

Q. Anything else in that curriculum vitae that you can point to that relates to the designing of the housing for rotary blades or preparing warnings for such housing?

A. I think those are the important ones.

Q. As I understand it, not to recapitulate in detail, but basically what you said that you had experience in machine design which was encompass teaching courses relating to that and doing consulting work that involved that?

A. That's correct.

Q. And that you taught a course in safety engineering which deals with safety and design of all kind of machines including blowers?

A. That's correct.

Q. Is that a fair summary of your answer?

A. That's right.

Q. You mentioned that you did consulting work in machine design. On this curriculum vitae, have you listed most of your consulting work?

A. Yes, sir. The bulk of it. There may be some that are not there, but those that are significant in that regard would be.

Q. I'm talking about, what in there would relate to any consulting work to designing a housing for rotary blades or preparing warnings for such?

A. Well, I need to clarify that. Specifically, I have not designed blowers as such nor prepared warnings for them, but similar devices in machinery, I have been involved with. I've worked for [redacted] Products Company in the design of various paper machinery, machinery for making of paper products. I have done work for [redacted] in the design of machinery. To name those two plus some work for [redacted] plus some work for [redacted] Company in [redacted] and in all of these, it would be correct to say that I was not involved in the designing of blowers, but involved in various machine design tasks that involved safety, prevention of intrusion of appendages into dangerous work areas

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and such like.

Q. None of these involved a trim blower?

A. No.

Q. A housing with a fan inside of it?

A. It did not.

Q. But it did involve areas where somebody could stick their fingers or arms or hands and get injured in some form or fashion?

A. Yes, sir.

Q. Does your report contain everything that you considered important that you learned about as to how the accident happened, what the plaintiff was doing at the time, and what experience the plaintiff previously had?

A. My report doesn't refer to his previous experience, but it does encompass all that I know about how this accident occurred.

Q. Who told you what you had set out in your report here?

A. Well, those things that were not a specific result of my observations and research were told to me either by Mr. (S) or they came through documents that he furnished me.

Q. How long did you take in this inspection?

A. Well, I think, we must have been there for all told not over an hour. About an hour.

Q. Then when you returned, you got the measurement from Mr. (S) to see whether or not your estimations were right and then you wrote your report?

A. Yes, sir.

Q. You didn't do anything in the interim?

A. No. I got to the point where I needed that, so I didn't ...

Q. What I am getting at, after you left the plant at the time, I'm sure you reflected on what you observed and all that, but in other words, you didn't do anything other than reflect on what you learned and getting the measurements from Mr. (S)?

A. That's right. What I really did, I looked at the drawings, cross sections of other blowers, similar blowers. This is a very, it should be said, is a typical centrifugal blower that has duo-purpose of shredding up paper as well and in manufacturing, well, let me say, in design and manufacture of the casing,

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so far as it functions as a blower, is similar to any other blower having this volute shape to the casing.

Q. What do you mean by volute shape?

A. It's like a, well, to the laymen, it's like a seashell. It starts small and gets larger as a spiral. In other words, it is of a spiral shape. If you start on the one side, it has a narrow cross section and as you go around the periphery, it gets larger and larger as you approach the opening. The reason for that is that it is picking up air. The air comes into the center and it is picking up air and the volume increases as it goes around towards the opening.

Q. You say you observed cross section of other blowers. Where did you obtain those?

A. Oh, they are in manufacturer's literature. That's where I saw those in Sweet's File, for instance, is a good source for such information.

Q. Did these blowers vary in the design, in the design from the one in question?

A. They're all pretty typical. The difference--they are all about the same so far as shape and arrangements concerned. Some have square openings, some have round openings coming out, but the basic construction is essentially the same.

Q. Is that what you mean by less effective?

A. Well, less effective--it's a matter of degree. It's a matter of context in which you use that word, because we can talk about something being defective to the point that it doesn't function properly. In other words, you can have a defective carburetor, for instance, and that carburetor doesn't deliver the fuel at the rate it should or you can have a defective alternator on an automobile that doesn't charge the battery properly. In that, of course, in that context it's not dangerous at all. It just doesn't function as it should. However, you can have a defective ladder, for instance, a wrung on a ladder can be defective and that affects its strength and it can break and cause an injury to the person that steps on it.

Q. [redacted] (B), let me ask you this. You will agree, won't you, that there are products that have danger and yet they are not defective in your judgment or however you define it?

A. That's right.

Q. You would agree with me, would you not, that certainly there are in the field of moving machinery, there are machines that you cannot or it would be impractical to design that would be accident proof?

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A. Yes, I will have to agree with that. There are some machines that are inherently dangerous. That's the type of machine that we have to be very careful about doing to the very best we can to guard it and prevent the user from getting into the zone of injury. That's the thrust of my remarks there, you see.

Q. Right, but you always have the element of the human factor in there; is that not true?

A. That's true.

Q. Just because an accident happens with a machine and someone is injured, does not itself make the machine defective?

A. No. It will make it dangerous, but not defective.

Q. Not defective as you define being defective?

A. Um-hum.

Q. So in the design of a machine there does come a point where you have to depend on the human factor and you can't eliminate the human factor altogether as far as injury is concerned?

A. No, you can't eliminate it, but you can do all of those things that will enhance the prevention of the accident in that you remind the worker or operator or you make it difficult for him to hurt himself.

Q. In your opinion should there be any warnings on the machine?

A. I think there should be a general warning. I think that there should be a warning in the vacinity of any moving parts that constitute these run-in points, nip points, pinch points, squeeze points, all of these terms that we use. I think that those that are judged by the people who use it, certainly by the man that designs it, to be dangerous, they ought to be covered somewhere any warning that cause attention to the danger. Here again, I'm certainly agreeing that it is not going to be possible where you got a whole series of things that have points and put one at each. For instance, you got a gang saw with lots of blades and run-in points that shreds it up into little pieces. You can't put a sign on each of those saws and say this is a dangerous run-in point here and that you're liable to get caught on this saw, but a general warning that says this area is dangerous.

Q. You just felt like that the manufacturer had the last clear chance as I underetand it?

A. That's right. He had the last chance to insure that this type of accident would not have happened to Mr. [redacted] or to anyone elee who was in his similar — position by simply putting in a longer barrel on it. I might add, parenthetically here, that the fix that somebody put on this thing later was to permanently screw a longer barrel. The thing was eight and a half inches long. Increased that four inches to really twelve and a half inches.

Q. They added eight and a half inches?

A. Yes, sir, added eight and a half and put on with four socket head screws which, you see--nobody is going to take four eocket head screws off juet to take that hose off. You can slide the hose off at the end now. So I'm eaying that the clear chance the manufacturer had was to put that sort of attachment on there to obviate the liability of someone reaching in there to contact the blade.

Q. In what way do you feel that the plaintiff here was contributorily negligent?

A. He didn't cut it off.

Q. That's tho main thing you think he did wrong in using it?

A. That's the main thing, because he was really under

the influunce of his subconscious idea of where this blade was by virtue of his previous experience on the old one.

Q. This habitual use of this old one?

A. Or whatever use he had of it. He had established some pattern there that wae not compatible with this new machine and in the case of the other machine, in the case of the older machine that he got hurt on it, I would have considered him just as negligent there for not cutting the switch off as I would in this case. I'm saying, we got sort of a common denominator. We got something on both sides of the equation here, two terms. They're going to divide out and cancel because he could have been just as negligent on the old machine for not cutting it off if he got hurt as he was negligent, considered to be negligent, in the case of this new machine when he didn't cut it off. But, the fact that he had got accustomed, by whatever use he had made of the other one, to that longer distance wherein he was safe. Because he got accustomed to that whenever he reached in to clear this short one, he was injured.

Q. You have mentioned or you suggested that the machine should have a warning and should have had the outlet longer than it was; is that correct?

A. That's right.

Q. How would you describe the machine without those two features, in your opinion?

A. Without those two, I would say that it is and was dangerous for the operator in these peculiar circumstances and again, I define those peculiar circumstances as being the result of the plaintiff's becoming accustomed to another machine in which he felt safe then operating this machine assuming he had the same margin of safety which he did not have.

Q. These are the peculiar circumstances that you are referring to?

A. Yesh. The peculiar circumstances are is that hs had become--the depth of which hs could reach had become a stereotype within his mind.

Q. Because of what?

A. Because of his use of the other machine. Because of his insxperience of the use of the other machine.

Q. By that you said you don't quantify the number of times he would have to use it, some number of times?

A. Yes. More than one, yeah, I'm saying that. Even one time is going to give him some feeling of how far he can reach in. There's no doubt about that.

Q. You indicated that the design of the seashell type design or configuration that most blowers have as the blower in question becomes larger towards the opening or the exhaust. Is there a specific reason for that?

A. Yes, sir. What happens is this. As air is drawn in into the center of the blower, the motion of the propeller or rotor in effect hurls the air outward towsrd the periphery of the casing. And as it builds up volume of air, the volute gets larger in the cross section so as to reduce the velocity. We have the velocity coming out very rapidly off the tips of the blade and there is a basic equation in the fluids, fluid dynamics, that simply says that the quantity flowing is equal to the velocity multiplied by the cross section area. And we have a certain amount of flowing, a certain quantity of air moving. If we introduced that air into a larger

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cross section, it slows up; but at the same time it slows up according to what is called Bernoulli's Principle the pressure that did exist due to the velocity of the air is transformed into static pressure or a steady push as it were rather than a velocity effect. And the slowing up, the enlarging of that volute, I think, while it's necessary for the functioning of the blade, it is in a measure responsible for the clogging because whenever the air begins to slow up, the particles of paper are not moving as rapidly as they were and they drop out as it were and they stick and hang. As long as they are moving fast, they don't hang up.

Q. Conversely, if I understand you correctly, if you don't have that largening towards the exhaust and the cross section, then you increase the velocity and you decrease the effectiveness of the cutting mechanism; is that correct?

A. To some extent, yes. I think so. Yeah. Because you got to have sometime on the blade to do the cutting.

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PART D

I. DEFENSE CASE

Hampton retained the services of the largest law firm in the area. The case was supervised by one of the senior partners, Ed Moore who engaged the services of an engineer, Dr. Burr. Dr. Burr also taught mechanical engineering and was a member of the faculty at a local University. Dr. Burr had worked in the automotive industry for several years before entering the teaching profession and had had several years of exprience investigating industrial accidents. He visited the Holland plant in June of 1979. A report on his investigation was not issued until a year later at the request of the attorney, Mr. Moore. Dr. Burr's deposition was arranged by Mr. Martin for August 22, 1980. By this time Mr. Martin had recognized the need for additional legal expertise in developing his case. Consequently he had associated another attorney, E. Albert Wallace, an attorney specializing in products liability litigation.

Dr. Burr's report is included as Exhibit D-1. The specifics of his conclusions are:

> "Mr. Timmons was acting in an incorrect manner as an operator when he failed to realize that a build-up of paper trimmings within the machine was a result of a jam in the exhaust system. As a result a very severe jam was created. He had effectively produced the situation which had eventually led to his injury.
>
> "Mr. Timmons was acting in an incorrect manner when he reached into the blower without first turning the blower off. As an operator, Mr. Timmons knew of the switch and its location. He also knew that the blower did not have to be on while clearing the exhaust port.
>
> "It was the nature of the exhaust system (as designed and installed by the employer, Holland) that it was subject to the type of paper trimming jams described in this report. The fact that the system did jam while Mr. Timmons was working as an operator contributed to the situation in which he was eventually injured. The responsibility for the jam, therefore, was the responsibility of the employee (and also the designer of the exhaust system) and not the responsibility of the manufacture of the printing press or the blower.
>
> "As pertains to Mr. Timmons or any other reasonable operator of the machine, a printed warning placed on the machine is unnecessary. There is no evidence that warnings

> have any effect on the actions of persons already aware of the present danger. There is nothing a warning could have done to increase the knowledge Mr. Timmons already had or should have had of the situation. Furthermore the fact that a potentially dangerous situation existed was patently open and obvious."

Excerpts from the 47 page deposition are included as Exhibit D-2. Questions were directed to Dr. Burr by Mr. Wallace.

Hampton's Vice President and Director of Customer Service, Mr. Hornsby, played an active role in the defense of this case. During his deposition a number of points were made:

- Our design is evolutionary. Whenever the occasion presents itself, and we feel that we can improve our product, we make the change. We don't make a certain model for a certain period of time.

- The fans (trim blower) are not made to our specs. We just purchase them from a catalogue.

- We sell the press and the fan. Not the exhaust system.

- We changed the suppliers of the fan only because we thought it was a better fan. We did not furnish the nozzle.

- It you put a warning on every possible danger point, you would have nothing but warnings from one end of the machine to the other.

- To the best of my knowledge we have never had complaints about the shredded paper jamming.

An internal defense memorandum prepared by Mr. Moore provides an excellent summary of the defense case and is quoted in part as follows. The actual text is included as Exhibit D-3.

> "The strong points in our case are the fact that the plaintiff admits that he knew there was a fan running inside the housing and his reason for sticking his finger inside the housing is that he had seen others free a jam in the housing with the use of their hands. Another is that the switch to cut off the fan was within an arm's reach of the plaintiff where he was positioned at the time of the accident. In addition, the plaintiff's expert admits that the plaintiff was negligent and guilty of misuse to some degree by sticking

his hand into the housing without turning off the fan (he states, however, that this is forseeable and that a warning or the design suggested by him probably would have prevented this). Moreover, we will have good testimony from the Holland employees, who will be impartial witnesses, to the effect that the danger was obvious, everyone knew not to stick their hands into the trim blower, and no one did so to free a jam or if they did they only pulled the paper right at the edge of the outlet rather than sticking their hand into the outlet.

"The weakness in our defense is the fact that subsequent to the accident, the Holland Company placed a warning on the trim blower and made the changes suggested by Dr. Bradshaw. While it is extremely questionable that post-accident changes of this nature are admissible in evidence, the courts are everyday becoming more lenient on this point by finding exceptions to this rule. We should, however, be able to keep out this evidence, the admission of which would be very dangerous to us. This will hurt us in the sense that the jury will not be able to view the scene. We believe that if they were able to view the scene, they would be convinced of the obviousness of the danger.

"the biggest weakness is the fact that Eastern Fan stated they had placed on the trim blower the warning described by the plaintiff's expert. Eastern Fan's attorneys advise that Eastern Fan is adamant about this. There was definitely not a warning on the trim blower at the time of the accident. Hampton had never seen a warning label when this question came up. They examined some of their stock, only a small part of which was left in the stockroom. A few had warnings, and few did not have warnings, but further checking in the box showed that the warning label had fallen off in the box. Eastern Fan's attorneys showed shipping lists which indicated the particular model number trim blower had been shipped with a warning label, or at least it was so indicated on the records. Probably what occurred is that the trim blowers were being shipped with warning stickers but they were not properly affixed, and they were falling off in the box. At Hampton's request, the warning stickers are now screwed onto the trim blowers. In any event, Eastern Fan's attorneys say that their clients witnesses will testify that no warning was needed, but it was put there to protect them in case of a lawsuit. We hope that they will be able to control these witnesses, we should not try to implead the distrubutor. They would hurt us considerably on the warning issue as they would add more witnesses about the warning being on the machines sent to us."

Additionally a recap of a trip visit written by Mr. Hornsby is included as Appendix D-4. As an indication of the range of activities involved in preparing a defense case a private investigator's report is included as Appendix D-5.

QUESTIONS

1. Do the information and arguments presented by the defense expert influence your opinions on the respective liabilities of the parties?

2. Do you agree with each of Dr. Burr's conclusions? Discuss each. Give the bases for your opinions.

3. Concerning Mr. Hornsby's statement about warnings everywhere (next to last item), do you agree or disagree? Why or why not?

4. Comment on the defense summation of the case.

5. Hornsby said that Hampton had had no complaints about jamming. If you were the chief engineer at Holland, what would you do about jamming problems on a new $330,000.00 machine?

PART D - EXHIBITS

D1 DR. BURR'S REPORT

D2 EXCERPTS DR. BURR'S DEPOSITION DATED MARCH 27, 1980

D3 LETTER FROM MR. MOORE TO HIS CLIENT, INSURANCE CARRIER FOR HAMPTON TOOL

D4 TRIP RECAP DISTRIBUTED INTERNALLY AT HAMPTON TOOL AND DATED MAY 17, 1979

D5 PRIVATE INVESTIGATOR'S REPORT ON MR. TIMMONS (CONTRACTED BY MR. MOORE)

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Schedule - Names Associated with Exhibits

1. Timmons - Injured Worker
2. Holland - Timmons' Employer
3. Hampton - Press Manufacturer
4. Eastern - Fan Manufacturer

5. Martin - Timmons' Attorney
6. Moore - Hampton's Attorney
7. Western - Another Fan Manufacturer
8. Bradshaw - Plaintiff's Expert Witness
9. Burr - Defendant's Expert Witness
10. Hornsby - Hampton Safety Engineer

TO: Mr. [redacted] - (6)
FROM: Dr. [redacted] - (9)
(1) - RE: [redacted] v. [redacted] Tool Co. and [redacted] Fan Co. - (3), (4)
Our Case Number: [redacted]
Your File Number: [redacted]

The following is a report on my investigation relative to the above referenced lawsuit. The lawsuit pertains to an injury to Mr. [redacted] - (1) on January 29, 1979, while an employee of the [redacted] - (2) Co., [redacted]. The [redacted] Co. is a printing company whose primary product is printed checks of the variety used for banking purposes. At the time of the injury Mr. [redacted] was - (1) operating a printing press manufactured by [redacted] Tool Co. In - (3) particular, he was working on a blower which was a part of that printing press and which was manufactured by the [redacted] Fan Co. This report - (4) is based on knowledge available to me at the time of its writing. Should additional information relative to the incident become available to me of which I am now unaware, I reserve the right to review this report in light of that information.

The report is divided into the following sections:

A. Summary Statement

B. Description of the Printing Operation and Features Having Bearing on the Incident

C. Arrangement of the Scrap Exhaust System at the Time of the Accident

D. Description of the Jamming Problem

E. Events Associated with Mr. [redacted]' Injury - (1)

F. Warnings

G. Conclusion

A. Summary Statement

Mr. [redacted], while employed by [redacted] Printing Co., and - (1), (2) operating a printing press manufactured by [redacted] Tool Co., was - (3) injured when he placed his hand inside a blower/shredder, attempting to clear a paper jam. The blower/shredder was supplied as a part of the [redacted] printing press and was manufactured by the [redacted] Fan Co. - (3), (4) The jam which Mr. [redacted] was attempting to clear was in part created by - (1) his own improper actions as operator of the machine. It was also the

result of an incorrect exhaust system on the part of the [redacted] Co. This particular exhaust system was such that paper jams were a recurring problem. Had Mr. [redacted] been operating the machine in a more correct manner or had the paper exhaust system been more correctly designed, the circumstances surrounding the injury would not have occurred. Furthermore Mr. [redacted] assumed risk upon himself when he inserted his hand into the blower knowing full well the dangers present and also knowing full well that the blower did not need to be on to clear the jam and could have been shut down by a switch located conveniently nearby.

It is the conclusion therefore that Mr. [redacted] contributed to his injury by incorrect operation of the machine and by placing himself in the proximity of a danger even though he already knew or should have known of the danger of putting his hand in the blower while it was on. It is also the conclusion that a less than effective exhaust system, having created a jamming condition, did constitute a further cause of the injury. It is further concluded that a printed warning on the machine was not necessary in that it would have had no effect on an operator who was or should already have been familiar with the danger of putting his hand into a location where the danger was patently clear and obvious. The injury is not the responsibility of either the [redacted] Tool Co. or the [redacted] Fan Co.

B. Description of the Printing Operation

The printing machine which Mr. [redacted] was operating at the time of his injury is used in the first stage of printing checks. The checks are printed on a continuous sheet of paper as it passes through the machine. In the final printing head of the machine this sheet is trimmed, perforated and cut. Under normal operating conditions the trimming operation removes a 1/8 inch wide strip of paper from either side of the base sheet of paper. These trimmed strips of paper are pulled through a pair of flexible metal hoses into and through a common blower. It is at this blower that the injury to Mr. [redacted] occurred. The blower performs the primary function of drawing the trimmed scrap away from the printing press. It also cuts the trimmed scrap into smaller lengths.

Figs. 1-4 are photographs of the final stage of the printing machine and the blower. Fig. 1 is a view of the final station and the blower showing the approximate relation of the blower relative to the machine. Figs. 2-4 are various photographs of the blower. The arrangement shown in these figures is essentially as it was at the time of my visit to the site (June 22, 1979). The scrap exits from the blower through a 4 inch diameter flexible hose. The blower has a 6 inch diameter exhaust port. Hence a reducer in the shape of a truncated cone is located between the blower and the hose. This arrangement is sketched in Fig. 5. Also as shown in Fig. 5, the hose connects to a 4 inch diameter PVC pipe which in turn connects by way of a "T" coupling to an overhead PVC header. This header runs

the length of the building and takes scrap from a series of printing presses similar to the one in question. The header routes scrap to a location outside of the building for further disposal.

The injury to Mr. [redacted] occurred at the exhaust port of the blower. Mr. [redacted] reached into the blower through this port to clear a jam of paper at that location. The blower was on at the time and struck his hand, causing injury.

C. Exhaust System Arrangement at the Time of the Incident

The exhaust system arrangement at the time of Mr. [redacted] injury differed somewhat from the arrangement observed during my visit. Certain modifications had been made by plant personnel at [redacted] Co., subsequent to Mr. [redacted] injury. The arrangement as it existed at the time of the accident was described to me during my visit and is sketched in Fig. 6. A 6 inch diameter flexible hose ran from the blower exhaust port through a reducer into the 4 inch diameter PVC pipe. It is unclear as regards the method by which the rubber hose was connected to the blower.

It is important here to realize that the exhaust system beginning at the blower exhaust port is the responsibility of the [redacted] Co. as are any modifications pertaining thereto. The modifications to this system which were made by [redacted] Co. personnel consist primarily of the following:

1. Relocation of reducer from location at entrance to 4 inch diameter PVC pipe to location at exhaust port of blower. (This change in turn forced replacement of the 6 inch diameter flexible rubber hose with a 4 inch diameter flexible metal hose.)

2. The addition of a three inch long extension to the exhaust port of the blower, between the blower and the reducer. This extension is attached to the blower by screw thread fasteners.

3. Taping the flexible hose to the small end of the reducer.

4. Adding the warning plate (see in Fig. 3).

In making their modifications it was the intention of [redacted] Co. personnel to prevent someone from reaching into the blower exhaust port and contacting the blades. However, as can be seen in Fig. 4, there exists a loose connection between the metal hose and the reducer. As will be described later in the report, jamming is a recurring problem with this particular exhaust system. Should a jam occur as far back as the blower and should the operator desire to clear the jam by hand, the present

existing arrangement at the blower exhaust port (reference Fig. 5) represents no greater a deterrent than the original arrangement (reference Fig. 6). The metal hose readily disconnects from the reducer. The distance from the reducer exhaust point to the blades is much shorter in length than would be an extended human arm.

D. Description of the Jamming Problem

At the time of his injury, Mr. [redacted] was clearing a jam which had backed up all the way to the blower. It is apparently a characteristic of the exhaust system installed by [redacted] on their presses that they periodically jam up. No accurate record of jamming frequency is available. Operating personnel indicate that jams may occur up to 2-3 times per week. At the time of my visit, however, a jam had not occurred for at least one month. It was noted that jamming was more of a problem in winter months (presumably due to dry conditions and greater buildup of static electricity). Mr. [redacted] injury occurred in January. All of the operators questioned indicated that clearing of jams was a recognized part of their job.

When jamming occurs it does so somewhere around the connection at the header or at the connection between the flexible hose and the PVC pipe. The operator would be aware of a jam since the blower would no longer be effective in drawing paper trimmings off of the press. The operator would then shut down the press (the blower would still be on), walk to the opposite side of the machine and disconnect the hose - usually at the reducer. By shaking the hose or poking a wire into the hose, the operator would attempt to dislodge the jam. If the jam was severe and had backed up to the blower, the operator would disconnect the hose at the blower (blower still on). This operation would not typically allow a pressure drop over the blower and the blower would clear itself. If the blower did not clear itself, the operator would turn off the blower before taking action.

The fact that jams were a recurring problem on this printing press were in no way unrelated to the nature of the exhaust system. This particular exhaust system was such that paper jams were a recurring problem. Had the paper exhaust system been less prone to jamming then the set of circumstances leading up to the accident would not have occurred or would have been less likely to have occurred.

E. Events Associated with Mr. [redacted] Injury

Mr. [redacted] was operating the machine in question when an accumulation of paper trimmings appeared at the final head of the printing press. Rather than realizing that a jam had occurred, he assumed that the press was out of adjustment. He therefore adjusted the machine and started it up again. The problem persisted. He repeated the adjustment process at least twice more. The problem however was not in adjustment but was

due to a jam having occurred in the exhaust line as previously described. By the time Mr. [redacted] recognized the problem he had created a very severe jam. Paper trimmings had backed up to the blower to the point of jamming the exhaust port of the blower. Mr. [redacted] eventually realized that the exhaust port of the blower was jammed and attempted to remove the paper at the location by hand. He had not turned the blower off and was injured. A switch which would have turned off the blower was, and still is, located conveniently nearby.

F. Warnings

It is necessary to address the issue to whether or not a warning placed on the blower would have had an effect on Mr. [redacted] actions. The machine was not equipped with such a warning.

The main purpose of a warning, be it printed or verbal, is to draw attention to persons who might inadvertently subject themselves to a dangerous situation that a potentially dangerous situation exists. A printed warning placed on the blower would have had an effect on Mr. [redacted] actions only if it served to make him more aware of the clear and present danger. Mr. [redacted], however, knew or should have known of the nature and function of the blower/shredder unit. As an operator familiar with his machine, he already knew or should have known of the danger inherent in placing his hand near the blades rotating inside the blower.

My experience is that there is no convincing evidence that a warning label penetrates the consciousness of someone already familiar with the dangers being warned against. A printed message on the machine does provide a method of initially warning persons who would not already be aware of a dangerous situation or who had not been previously warned. This however was not the case with Mr. [redacted]. My opinion is that the presence of a warning would not have had an effect on Mr. [redacted] actions. Mr. [redacted] either was or should have been familiar with the nature of the machine, its functions and its inherent dangers. He was working as a machine operator in attempting to clear the paper exhaust path and certainly should have known of what can only be called an open and obvious danger. The obviousness of the danger itself, as it would have or should have been perceived by any reasonable machine operator, precluded the need for a warning.

G. Conclusions

1. Mr. [redacted] was acting in an incorrect manner as an operator when he failed to realize that a build up of paper trimmings within the machine was the result of a jam in the exhaust system. As a result a very severe jam was created. He had effectively produced the situation which eventually led to his injury.

2. Mr. [redacted] was acting in an incorrect manner when he reached into the blower without first turning the blower off. As an operator, Mr. [redacted] knew of the switch and its location. He also knew that the blower did not have to be on when clearing the exhaust port. - (1) - (1)

3. It was the nature of the exhaust system that it was subject to the type of paper trimming jams described in this report. The fact that this system did jam while Mr. [redacted] was working as an operator contributed to the situation in which he was eventually injured. - (1)

4. As pertains to Mr. [redacted] or any other reasonable operator of the machine, a printed warning placed on the machine is unnecessary. There is no evidence that warnings have any effect on the actions of persons already aware of the present danger. There is nothing a warning could have done to increase the knowledge Mr. [redacted] already had or should have had of the situation. Furthermore the fact that a potentially dangerous situation existed was patently open and obvious. - (1) - (1)

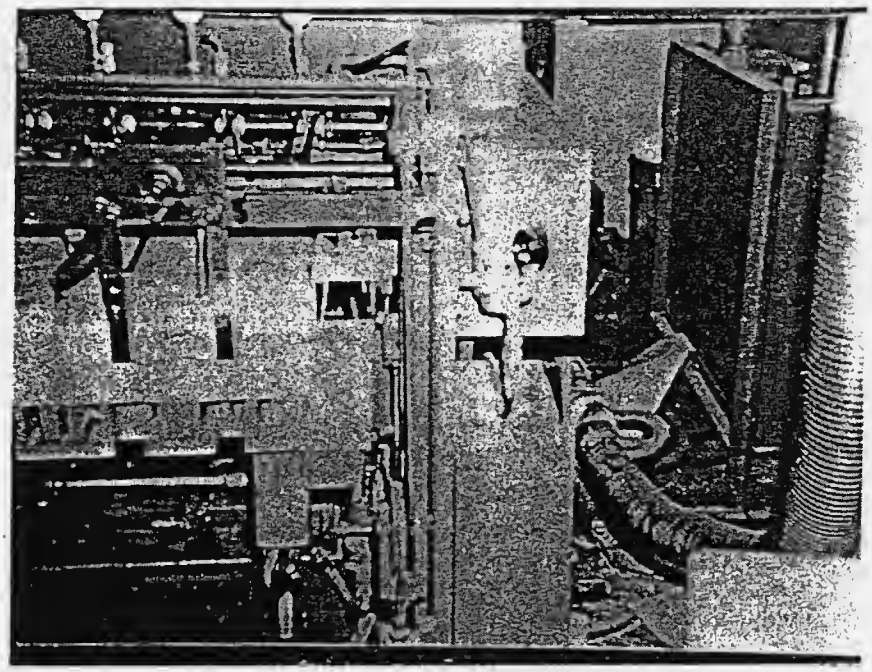

Figure 1 - Photograph of final station of printing press

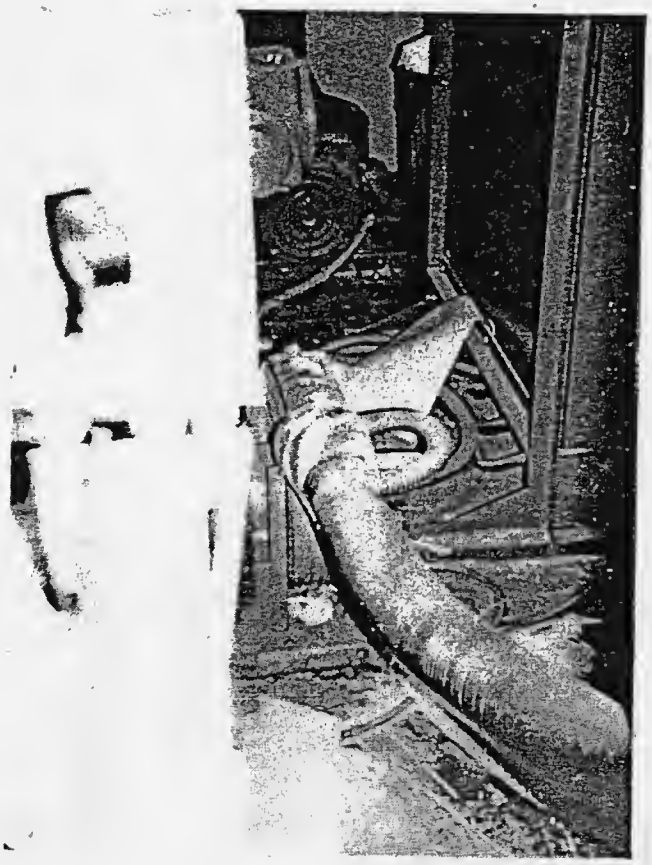

Figure 2 - Photograph of blower as viewed from the rear of the machine

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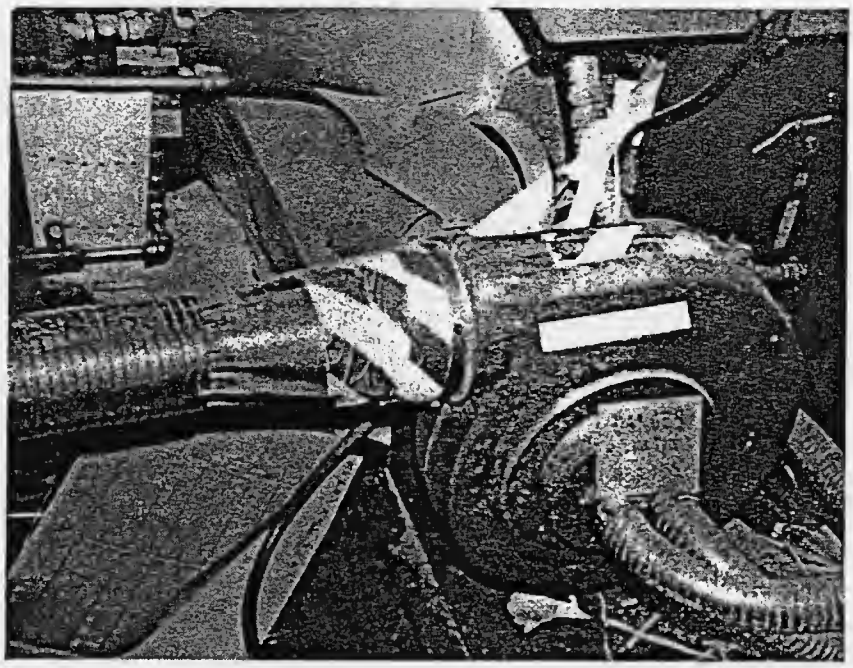

Figure 3 - Side View of Blowers

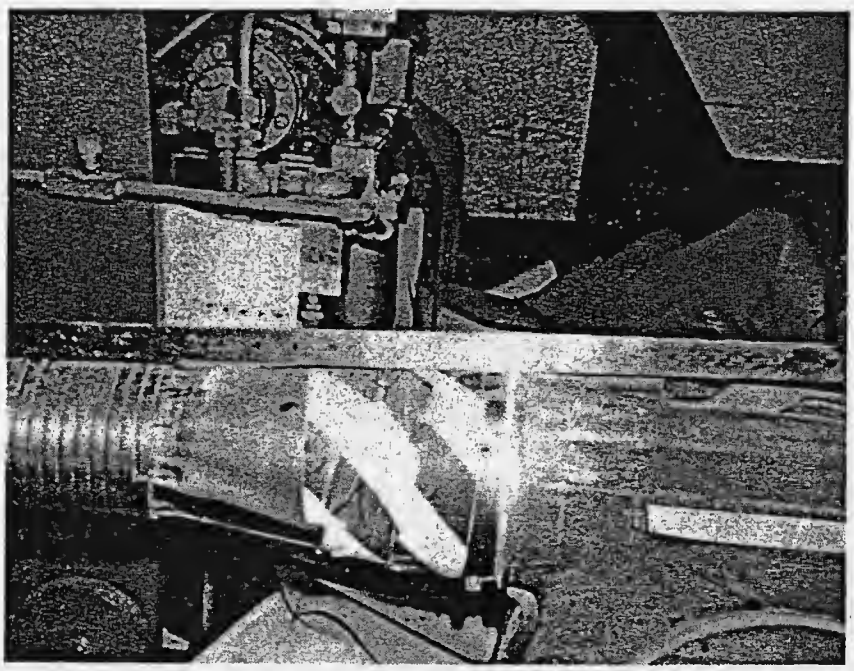

Figure 4 - Close-up view of blower showing reducer attachment

For Figure 5 refer to Exh. B-2
For Figure 6 refer to Exh. B-3

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF [redacted]

[redacted] DIVISION

CIVIL ACTION NO. [redacted]

(1) [redacted],

Plaintiff,

vs.

(3) The [redacted] Tool Company
and [redacted] Fan Company,
(4)

Defendants.

DEPOSITION OF:

(1) [redacted]

Pursuant to Notice of Deposition and/or Agreements in the above-entitled case, a Deposition was taken on the 22nd day of August, 1980, commencing at 12:20 p.m., and attended by counsel as follows:

APPEARANCES:

[redacted] Esquire, of the firm of [redacted] and

(5) [redacted] Esquire, of the firm of [redacted],

ATTORNEYS FOR THE PLAINTIFF,

and

[redacted]
SUITE [redacted] BLDG.
[redacted] STREET
[redacted]

Q. When was that?

A. I've got the date here. June 22, 1979.

Q. When had the accident taken place?

A. The accident occurred during January of 1979.

Q. Was the press on which Mr. (1) [redacted] was injured, physically located in the plant at that time?

A. At the time I was there to inspect it, yes. We inquired when we entered the building as to the press in question and the individual there -- I understand he was a foreman -- took us right to the press, and I inquired, "Is this the press that Mr. (1) [redacted] was injured on?" He said, "Yes." So, it was located in the plant.

Q. What inspection did you make of it?

A. I tried my best to familiarize myself with the overall operation of the press and kind of what the idea was behind why it was in the plant. What was it supposed to do for (2) [redacted] Company. What went into it and what went out of it. What was the general flow of materials associated with it. Roughly what a person does when they are operating a press. What's a routine task. To what extent they are responsible for maintaining the machine. Were there such things as millwrights employed by the company.

Q. What was that?

A. Millwrights. M-i-l-l-w-r-i-g-h-t.

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Q. What do you mean by that?

A. A millwright is somebody who has the responsibility of maintaining a rather sophisticated piece of mechanical equipment in the plant. He would be a sophisticated mechanic. I don't imagine that a millwright would be too excited about that definition, but that kind of sums it up.

Q. Did you talk with the millwright there?

A. No. He apparently was not due -- the dayshift millwright was off that day, and the afternoon shift millwright wasn't due to show up for about an hour and a half after we had completed our investigation so I didn't talk to the millwright.

Q. How long did your investigation take?

A. I believe that I was there about an hour. Maybe an hour and a half.

Q. Did you make any measurements of the machine?

A. I didn't make any measurements, no.

Q. Did you compare that machine with the others which were in operation over there?

A. The vast majority of my time spent at the plant, was occupied at the particular machine in question. I was taken, by the foreman, and shown portions of the machine which Mr. (1) [redacted] had also run at some time in his history of his employment with the company.

Q. What else did you do at the plant?

A. After satisfying myself that I had a pretty good idea as to what the machine was used for and what it did, I started focusing my attention on the scrap paper removal system. The trim removal system. And, I examined the duct work and the blower arrangement, and the general overall system put in by (2) [redacted] to get the trim scrap - out of the building. I talked to the foreman, a great deal, about, in general, how the system worked because they didn't want to disassemble it as the thing was in operation. So, I was fairly familiar with how they put the whole thing together and what it did and what the parts were. But, I talked to several of the operators about the problems associated with jamming, and essentially what they did and how they attacked the problem.

Q. How did they attack the problem?

A. Well, it was typical, if you had a jam on the machine, to disconnect the pipe, as I understand it, either at the connection where the flexible pipe went into a vertical plastic pipe, a PVC pipe, or at the end of the blower, and then, shake the pipe around, and, as a rule, the jam would dislodge itself and travel on up the pipe.

Q. Did any of them tell you that they put their hand in and pulled the shredded material out?

A. No, they didn't.

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Q. Did you ask whether they had done that?

A. Yes, I did.

Q. And, all of them denied that they had ever put their hand in it?

A. The only discussion we had was that they would not put their hand in there.

Q. What else did you do?

A. That is about it. Let me just check here because you've asked a couple of questions in between my narration. We discussed the alterations which [redacted] (2) Company had made in the system since the time of the accident.

Q. What were those alterations?

A. Originally, the blower arrangement on the machine in question, involved a six-inch in diameter flexible rubber hose that went from the blower, travelled about ten feet or so, maybe twelve feet, to the base of a vertical PVC pipe. The PVC pipe being four inches in diameter, necessitated a reducer between the end of the flexible rubber pipe and the bottom of the vertical PVC pipe.

Q. Had they put the reducer on?

A. They had assembled everything, as I understand it, from the blower on out to the entire system from that point on

Q. Did they tell you that The [redacted] (3) Tool Company had anything to do with the exhaust system or the installation of it?

A. I discussed that with them, just briefly, and I left with the impression that they had assumed responsibility for everything from the end of the blower out.

Q. Did you do anything else?

A. As far as I know, that's it. If something comes to mind while we're discussing the events, I'll bring it up.

Q. At what conclusions did you arrive as a result of your inspection of the equipment?

A. Well, the primary points in my conclusions are given in my report here, and I would just as soon refer to those.

Q. Name the person who was responsible...

A. The employer, [redacted] (2).

Q. Who was that individual?

A. Within the company? I'm not sure exactly who within the company had the responsibility for putting that system in, but it was my understanding that that responsibility was assumed by [redacted] (2) Printing Company and their employee. As I say, I have listed my primary conclusions. It's been my experience in these depositions that eventually, questions are asked, when I'm asked to give my opinion, which go beyond these, and if I'm able to do so within my expertise, I will at that time. In observing the nature in which Mr. [redacted] (1) was operating the machine and talking with other operators who had had some knowledge of the incident, they had indicated that the jam

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that was involved in the accident with Mr. [redacted], was what they referred to as a "super jam" or a severe jam, and in practice, was due to the nature in which Mr. [redacted] was operating the machine.

Q. Did they tell you how long he'd been operating the machine before he left?

A. We didn't get into that in any great detail. I couldn't really say specifically.

Q. Did they tell you what training they had given him before he started operating the press?

A. We didn't get into that discussion at all. I'm not an industrial engineer. That wasn't the full impact of my investigation at the time.

Q. Did you ever confer with Mr. [redacted] himself?

A. No, I have not. Another point -- another conclusion that I reached was that it was my conclusion that Mr. [redacted] was acting in an incorrect manner when he reached his hand in the blower without turning it off. A third conclusion -- a main conclusion -- I reached, as I stated in my report, is that this particular exhaust system had a characteristic of jamming -- of jams occurring.

Q. Would that be a four foot extension?

A. I couldn't give you the exact number, I'd have to actually look it up. Those kinds of numbers are published and are available in human factors.

Q. The extension of that would not affect the successful operation of the blower, would it?

A. It wouldn't affect the operation of the blower, no.

Q. And, of course, it would be a safety factor which would avoid an accident of this type?

A. If you had one on there that was as long as I'm talking about, there would have been no way possible for anybody to stick their arm in there and get their fingers caught in the blade.

Q. Would that be a great expense to have that extension?

A. It would have been a significant expense.

Q. How much of an expense?

A. I would say it probably would have increased the cost of the fan by approximately twenty to twenty-five, maybe thirty percent.

Q. To add just an extension pipe on it?

A. Well, when you add the extension pipe on it, you have to consider the fact that it has to be put on there in such a way that you can't get it off. Because, if you can ge it off, you would mitigate the defense mechanism that you're trying to insure by putting it on there. So, now the method of attachment has to be rather elaborate, or else it has to be intricately cast with the housing of the entire -- of the entire housing of the blower. If you consider the intricately cast situation, you're now talking about die work and a casting technique which is jumping in order of magnitude and difficulty.

Q. How much does a fan cost?

A. I really don't know. I can give you an approximate figure for that.

Q. How did you arrive at the fact that it would cost twenty percent more to add this on, if you don't know the cost of the original machine?

A. In my business, I estimate equipment for the University. I estimate equipment purchases for other people. I have a reasonably good feel for approximately what kinds of costs things are and if you add features to them

approximately what that's going to cost you. It's my business to know about manufacturing techniques, design techniques, the (inaudible) and the cost pertaining thereto.

Q. But, if that was part of the original casting of the exterior of the fan, itself, and could be done by the original manufacturer, do you think that the cost would still increase twenty percent?

A. Definitely, if you're talking about intricately cast extensions that are probably on the order of four feet or so. You're talking about a significantly tough casting job.

Q. Could they weld it to that at the factory?

A. It's conceivable -- well, not with that kind of housing that's on there now.

Q. Well, I mean if they had metal...

A. There are some metals that you can weld and certain metals you can't weld.

Q. What type metal is this...

A. I'm not sure, but it doesn't appear, to me, to be steel or something which could be readily welded. It looks to me like either an aluminum die cast or another type of related like metal. Magnesium die cast or zinc die cast

Exh. D-2

Q. Can a human hand get in a four-inch opening?
A. Yes sir.
Q. By increasing the diameter of this opening, would it affect the operation of the fan in discharging this shredded material?
A. Now you're talking about an area where I have limited skills. That's air movement and the fluid dynamics equations associated with it. But, I would say -- let me see -- I have to hear your question again. Are you talking about the size of the exit port?
Q. Right.
A. Would you repeat it again, please?
Q. Did it reduce its efficiency by virtue of adding this four-inch hose to the six-inch hose?
A. I would have to beg off on that question. I really don' know. The original designers had in mind a six-inch diameter opening. If you start covering up -- obviously if you cover up the entire opening, you're not going to get anything coming out of there. To what percentage you can cover up the exit opening because you're reducing the cross section area of the exit considerably going from six inches to four inches. To what extent you can cover up that exit opening and not affect the

performance of the blower, I don't know.
Q. If you had a smaller opening isn't the suction pressure greater than...
A. I can't address myself to that question. I don't know. I'd have to actually perform some calculations on that in advance, and I haven't done that, nor was I asked to.
Q. In the exhaust system, itself, I believe that after the shredded paper left this opening, it went to a "T" connection. Is that correct?
A. Actually, it went down the metal tubing -- the metal tubing we see in these photographs here was taped -- I believe it was taped to a vertical piece of PVC pipe. And, that vertical piece of PVC pipe went up and connected into a horizontal header which ran the length of the building, and that connection was a "T' connection.
Q. Had they had a "Y" connection rather than a "T' connection, would that have improved the efficiency of the exhaust system, in your opinion?
A. I'd have to be very careful about how you're using the word "efficiency." Could you explain to me what you me by efficiency?
Q. Efficiency, sir?
A. Is that effectiveness in terms of being able to pull th scrap off of the...

Q. Well, if you say this picker that we've been talking about, which is a separate instrument in order to eliminate the jam, if you say that's impractical, wouldn't th installation of a longer nozzle so that the human hand can't get to the blades, be the most practical way to avoid these accidents?

A. No, because -- actually, in that particular incident, what you're doing -- if you put the long extension on there, you're kind of working yourself into circles her as a designer. If you put the long extension on there so that you can't possibly get back to the blade, and there does indeed occur a jam which goes all the way back to the blade, you're going to darn well have to clear that out sooner or later. You're going to have to get in there eventually and get the jam out of there. So, what you've done now is by designing it so that you can't possibly get your arm all the way to the blade, it to make it impossible ever to clear a jam independent of -- that would occur back in there, other than completely taking apart the blower.

Q. Who requires these warning signs to be put on equipment? Is it, the government?

A. I didn't do any research in terms of the requirements of any standards associated with this particular kind of equipment. I'm fairly familiar with the spectrum of standards that are available, and to my knowledge, there are no standards from anybody promulgating standards that indicate that a warning should be on this kind of equipment.

Q. In other words, the manufacturer of the fan provided the warnings at the time of delivery. Is there any reason why they shouldn't have installed them on the equipment before using it?

A. I don't know whether there was any such thing at all really. Are you posing a hypothetical question?

Q. Yes.

A. If the supplier of the fan provided a warning that went on the fan at the time that it was purchased by (3) [redacted] Tool Company, and you're kind of connoting in your question that (3) [redacted] Tool Company deliberately removed it...

Q. No, they didn't install it.

A. Was it a loose item?

Q. Apparently so.

A. I don't have any idea.

71

ECL 266D

Exh. D-2

XXXXXX, XXXXXX, XXXXX & XXXXXXXXXX
ATTORNEYS AND COUNSELORS AT LAW
XXXX XXXXXX XXX XXXXX
XXXXXXXX, XXXXX XXXXXXXX XXXXX

March 27, 1980

Mr. W.E. Xxxxx
The Xxxx Insurance Company
Post Office Box xxxxx
Xxxxxxxxx, Xxxxx Xxxxxxxx xxxxx

Re: Timmons -vs- Hampton Tool Co., et al.
Our File No. 300/1050
Your Claim No.: 251-L-552147

Dear Xxx:

We are herewith submitting to you our evaluation of the above captioned case.

As you will recall, the plaintiff stuck his hand in the trim blower of a check printing machine in order to free a jam and his fingers were injured by the blades of the fan inside the trim blower.

The theory of the plaintiff's case is that there should have been a warning on the trim blower regarding sticking your hands therein or there should have been an extension placed on the outlet of the trim blower which tapered to a smaller end to which the flexible pipe joined. This would have made it more difficult for someone to stick their hand far enough in to be injured by the blades. This was the testimony of the plaintiff's expert, Douglas Bradsaw, a mechanical engineer who is a professor at Xxxxxx University. He has quite a bit of experience in the design of moving machinery and as a consultant in products cases. He testifies mostly for the plaintiff and makes a fair impression. However, often his reason for stating a product is defective and unreasonably dangerous is not too logical, as is the case here.

We have Dr. Tim Burr, a professor of mechanical engineering at the University of Xxxxxxxx, who will contradict Dr. Bradshaw. He should make a good witness. We also have Luther Hornsby, our in-house expert, who will

Exh. D-3
(Retyped)

only make a fair witness. The codefendant has chosen not to use an independent expert but to rely on our independent expert. They will have, however, an in-house expert who will testify similarily to Dr. Burr. We will also have some employees from the John Holland Company who will testify regarding the obviousnesss of the danger.

The strong points in our case are the fact that the plaintiff admits that he knew there was a fan running inside the housing and his reason for sticking his finger inside the housing is that he did not know the fan blades were that close to the outlet and he had seen others free a jam in the housing with the use of their hands. Another is that the switch to cut off the fan was within an arm's reach of the plaintiff. In addition, plaintiff's expert admits that the plaintiff was negligent and guilty of misuse to some degree by sticking his hand into the housing without turning off the fan (he states, however, that this is foreseeable and that a warning or the design suggested by him probably would have prevented this). Moreover, we will have good testimony from the Holland employees, who will be impartial witnesses, to the effect that the danger was obvious, everyone knew not to stick their hands into the trim blower, and no one did so to free a jam or if they did they only pulled the paper right at the edge of the outlet rather than sticking their hand into the outlet.

The weakness in our defense is the fact that subsequent to the accident, the John Holland Company placed a warning on the trim blower and made the change suggested by Dr. Bradshaw (this may be where Bradshaw obtained his idea about the design change). While it is extremely questionable that post-accident changes of this nature are admissible in evidence, the courts are everyday becoming more lenient on this point by finding exceptions to this rule. We should, however, be able to keep out this evidence, the admission of which would be very damaging to us. This will hurt us in the sense that the jury will not be able to view the scene. We believe that if they were able to view the scene, they would be convinced of the obviousness of the danger.

The biggest weakness is the fact that Eastern Fan stated they had placed on the trim blower the warning described by plaintiff's expert. Eastern Fan's attorneys advise that Eastern Fan is adamant about this. There was definitely not a warning on the trim blower at the time of the accident. Our people had never seen a warning but when this question came up, they examined some of their stock, only a small part of which was left in the stockroom. A few had warnings and a few did not have warnings, but further checking in the box showed that the warning label had fallen off in the box. All of our employees who had dealt with the trim blower on the trim blowers. However, Eastern Fan's attroneys showed me shipping lists which indicated the particular model number trim blower had been shipped with a warning label, or at least it was so indicated on that record. Probably what occurred is that trim blowers were being shipped with warning stickers but they were not properly affixed and they were falling off in the box.

Exh. D-3
(Retyped)

At our request now, the warning stickers are now screwed onto the trim blowers. In any event, Eastern Fan's attorneys say Eastern's witnesses will testify that no warning was needed but it was put there to protect them in case of a lawsuit. We hope that they will be abe to control these witnessses.

We should not try to implead the distributor. They would hurt us considerably on the warning issue as they would add more witnesses about the warning being on the machine sent to us.

As to plaintiff's injury, there is no question but that he suffered a substantial one. He sustained a traumatic amputation of his left long, ring, and little fingers. He lost the first two joints on his long and ring fingers and the first joint on his little finger. His left index finger was crushed and his left thumb was cut. He continues to experience an aching pain in his left hand, especially in cold weather and the index finger is numb. Of course, he cannot use his left hand as before in many obvious ways because of the loss of the fingers. He was hospitalized for several days and off work for six weeks. He came back to work with the same employer but could no longer work the check printing mzchine and had to work in the stock room. He has subsequently left the employ of John Holland Company. He will, of course, be able to work and we are certain he has another job but the disability from loss of the fingers is significant. His specials are as follows:

Xxxxxxxx Xxxxxxxx Xxxxxxxx	$1,054.00	
Xxxxx Clinic	324.00	
Lost Wages	1,248.00	(6-7 weeks)
Total	$2,626.00	

He also received $9,461.00 in workmen's compensation benefits. Therefore, including the medicals, the comp carrier has a lien of $10,800.

We feel we have a good chance of defending this case but it is a jury question and if the jury returns a verdict, it will probably be in the range of $50,000 to $75,000. With witnesses from two defendants involved and also from the third party employers, John Holland, there will be considerable amount of trial preparation. From this date until the end of trial, you are conservatively looking at about $6,000 legal expenses not counting the expense of the consultant witnesses and other witnesses. The costs would be similar for Eastern Fan. Even if you gave the plaintiff a ten percent chance of obtaining a $75,000 verdict (a conservative estimation), you would be talking about $7,500. Therefore, if you took the defense costs of both defendants and added even a ten percent chance of winning, you would be talking about a total of $20,000.

Eastern Fan's attorney and I agreed that $20,000 is a fair and reasonable

settlement evaluation and that the exposure of each is equal although both have good defenses. We would strongly recommend that we pay up to $10,000 at this point to settle the case without any further work of legal expenses. Eastern Fan's attorney states that he will do the same.

For some reason, plaintiff's attorney is anxious to settle and has been calling me almost daily. If you wish to settle, we should make the attempt immediately. I would like to hear back from you by Wednesday, April 2,1980, as I have indicated to plaintiff's attorney that we will let him know something by then. We will, of course, not offer the full $20,000 but start at about $12,500 or $13,000 and negotiate the best settlement up to $20,000 that we could. The $10,800 comp lien presents a problem, but the comp carrier should be willing to compromise it considerably.

I look forward to hearing from you next week.

Sincerely,

E. W. Moore
XXXXXX, XXXXXX, XXXXX & XXXXXX

Exh. D-3
(Retyped)

3 [redacted] COMPANY May 17, 1979

RECAP OF TRIP TO [redacted] A
TO VISIT THE LAW FIRM
OF
[redacted]
1,3 CONCERNING [redacted] VERSUS [redacted] TOOL COMPANY
Claim [redacted]
File [redacted]
2 Concerning [redacted] Press S.O. [redacted]

A man injured his hand by placing it into the trim blower while it was running. I left a list of questions with [redacted] to be used by them if they are of any value in this case. These questions were prepared before my visit to their law office and ensuing visit to [redacted] Company. The meeting at [redacted] 2 6 was with [redacted] and myself. Following are a list of questions I prepared for Mr. [redacted] 2

1. Were you instructed by anyone as to the function and operation of the trim removal system?
2. How did you know the trim blower was jammed?
3. Did the trim blower motor completely stop?
4. Did you turn off the trim blower switch before attempting to clean the jammed trim from the trim blower?
5. Is it part of your job to clean out the trim blower if it becomes clogged?
6. Where does the trim go when it leaves the trim blower?
7. What is the outlet of the trim blower connected to?
8. How is the outlet of the trim blower connected to #7.
9. How do you disconnect the outlet of the trim blower?
10. What tools do you use to disconnect the outlet of the trim blower?
11. Did you feel any movement, vibration or hear any noise from the trim blower or trim blower motor before you disconnected the outlet of the trim blower?

Exh. D-4

3 [redacted]

May 17, 1979
Page 2

12. How did you attempt to remove the trim that was jammed inside the trim blower?

13. Was the inlet of the trim blower disconnected by you?

14. Had you ever cleaned trim from the trim blower before the time of this accident?

15. Were you the only one working on this S.O. [redacted] at the time of this accident?

16. If someone was working with you, was he near the trim blower ON-OFF switch at the time of the accident?

A number of the above questions were answered by Mr. [redacted] during my visit.

3
2 The electrical connection of the blower to the [redacted] press has been changed by [redacted] Company. The ON-OFF switch for the trim blower mounted on our console is no longer operative nor is the starter operative as they have added a knife switch on the rewind end, outside the main electrical control cabinet so that the trim blower can remain running when the press is completely shut down. This is done to keep their central scrap removal system from jamming. The knife switch is within 3 feet of the trim blower for easy access by the operator. It is fused with a total of three FRN20 fuses, one in each of the 3 phase lines. Our starter, which is no longer used, was furnished with N20 overloads which are the proper size for the blower to operate on 208 volts, 3 phase, 60 cycle current at 3.4 amps.

2 At the time of the accident, according to [redacted], the gentleman, who
2, 3 was injured, told him and other people at [redacted] that what he had done was very foolish and that it was no fault of anyone at [redacted] or anywhere else, only his own mistakes. Since the time of the accident, he has changed his story, apparently after being in contact with an attorney.

4
3 The jam-up that he was trying to remove started in the central scrap collecting
2 system which was added onto the outlet of the [redacted] Fan blower by [redacted] Company. The opening in the blower discharge is 6" in diameter. [redacted] scrap removal tube coming to the blower is smaller, being approximately 4" in diameter. It is attached to the outlet of the trim blower by tape. According to [redacted], it is common practice on all of their presses to remove the tape and remove the line to their central system from the blower when a jam occurs. Obviously this jam did not back up into the fan blades of the blower because the fan blades were still turning when the gentleman stuck his hand into the blower outlet. It is approximately 6" to 8" from the outlet of the blower to the fan blades. A fan of this type, when having the outlet covered which would be the case here with the scrap jammed, would have no load as it is operating in still air so no fuses or overloads would be destroyed; therefore, the motor would continue to run.

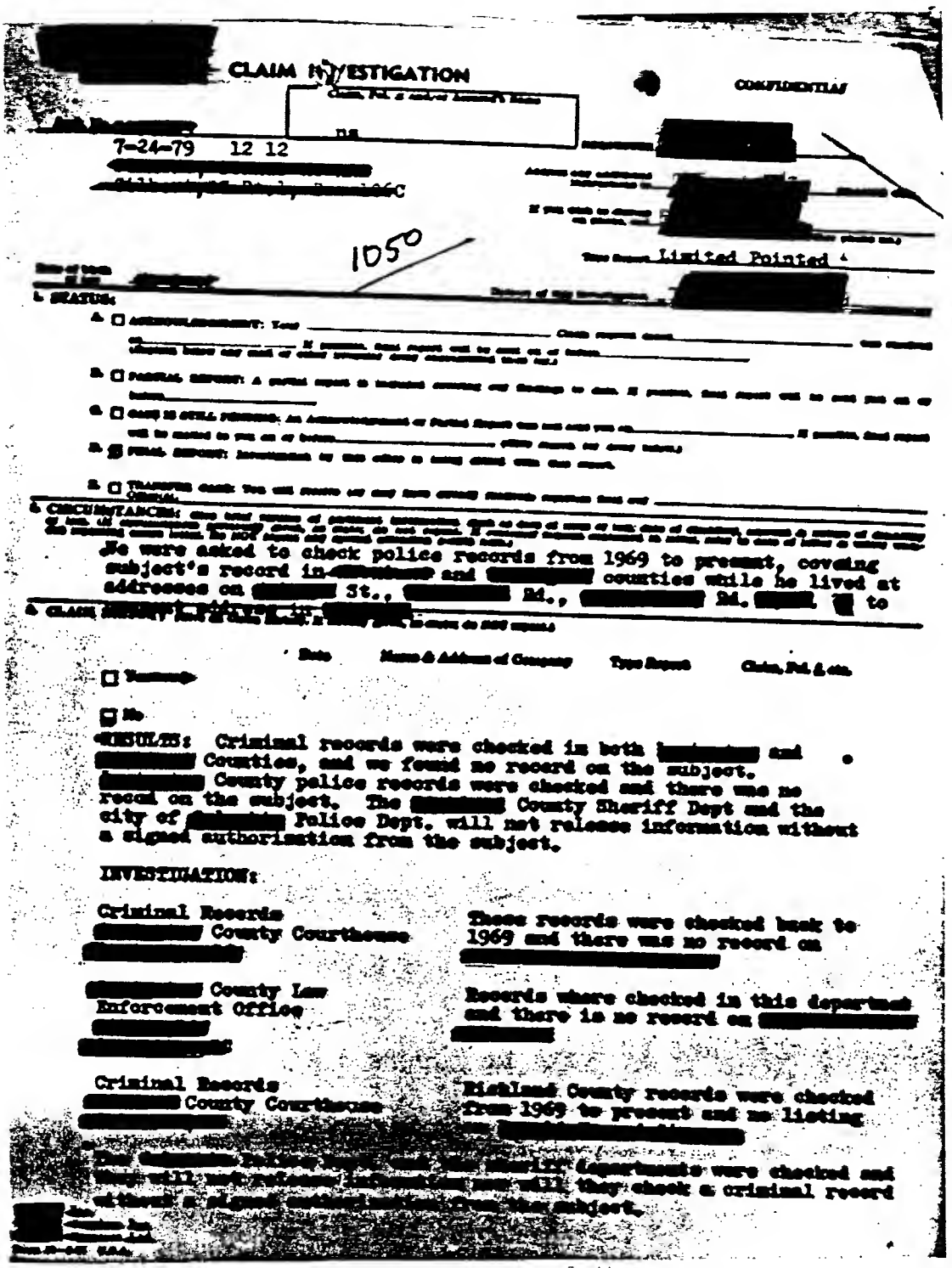
2 Since the time of the accident, [redacted] Company has installed two warnings
on the fan itself. One is a black and yellow tag that says, "CAUTION STOP
2 MACHINE BEFORE MAKING ADJUSTMENT". The other tag, which is black and white, says, "DANGER - ROTATING BLADES". [redacted] has also added a sheet metal adapter on the outlet of the blower reducing the diameter from 6" to 4". This is approximately 9" long and, in my opinion, would be of no value because a normal size man can still put his hand through the 4" diameter opening and can reach the 14" to 15" to the fan blade. This adapter may even make it worse since it is reducing the area that the trim must move through and would, in my opinion, increase the probability of a paper jam.

I believe this fairly well covers the items observed and discussed during my visit to [redacted]

10 [redacted]
[redacted], Vice President
Director of Customer Service

[redacted]

Exh. D-4



CLAIM INVESTIGATION

CONFIDENTIAL

7-24-79 12 12

1050

Limited Pointed

We were asked to check police records from 1969 to present, covering subject's record in and counties while he lived at addresses on St., Rd., Rd. to

Date Name & Address of Company Type Report Claim, Pol. & etc.

☐ Yes

☐ No

RESULTS: Criminal records were checked in both and Counties, and we found no record on the subject. County police records were checked and there was no record on the subject. The County Sheriff Dept and the city of Police Dept. will not release information without a signed authorization from the subject.

INVESTIGATION:

Criminal Records County Courthouse

These records were checked back to 1969 and there was no record on

County Law Enforcement Office

Records where checked in this department and there is no record on

Criminal Records County Courthouse

Highland County records were checked from 1969 to present and no listing

Exh. D-5

HOW TO DESIGN, MANUFACTURE AND INSTALL AN UNSAFE BLOWER SYSTEM

PART D

DEFENSE CASE

A worker suffered a serious hand injury when he was cleaning out a trim blower. Was he just careless or is the manufacturer of the blower guilty of producing a defective design? Was the equipment placed in service with inadequate warnings?

Robert K. Taylor, M.S., P.E.
Tim A. Jur, Ph.D., P.E.
ENGINEERING DESIGN & TESTING CORP.
Columbia, South Carolina

This engineering case was prepared in fullfillment of P.O. 85-35134 under the sponsorship of the Division of Training and Manpower Development, National Institute for Occupational Safety and Health. Appreciation is expressed to the attorneys and engineers involved in this case for permission to use their files in preparing this case.

(Names, but not facts, have been changed.)

HOW TO DESIGN, MANUFACTURE AND INSTALL AN UNSAFE BLOWER SYSTEM

PART E

OUTCOME AND AFTERMATH

A worker suffered a serious hand injury when he was cleaning out a trim blower. Was he just careless or is the manufacturer of the blower guilty of producing a defective design? Was the equipment placed in service with inadequate warnings?

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(Names, but not facts, have been changed.)

Part E

OUTCOME AND AFTERMATH

After much negotiation (Exhibits E-1, E-2 and E-3 are representative) the lawsuits was settled for $26,500.00. Eastern and Hampton had entered an agreement to split 50/50 up to $20,000.00 and then Hampton would pay $2.00 for each $1.00 that Eastern paid. Therefore Hampton paid $14,333.00 and Eastern paid $12,167.00. The settlement document is included as Exhibit E-4. The workers' compensation lien was $4,000.00 (see Exhibit E-4, Page 4). The remainder was divided between Mr. and Mrs. Timmons and their attorneys according to the agreement they had arranged (Exhibit A-4). (Workers' compensation is a form of insurance held by employers to cover employee's injury related expenses. When the employee collects funds from a third party, eg. Hampton and Eastern, the workers' compensation company has a lien to recover all or part of what they have paid).

Since the time of the accident, Holland has installed two warnings on the fan itself. One is a black and yellow tag that says, "CAUTION! STOP MACHINE BEFORE MAKING ADJUSTMENT". The other tag, which is black and white says, "DANGER - ROTATING BLADES". Holland has also added a sheet metal adapter to the outlet of the blower reducing the diameter from 6" to 4". This is approximately 9" long, which in the opinion of Hampton and Dr. Burr (Exhibit D-1, Pg. 3 and 4) would be of no value because a normal size man can still put his hand through the 4" diameter opening and can reach the 14" to 15" to the fan blade. Eastern Fan and Hampton now put permanent warning signs on the fans they ship.

Mr. Timmons returned to work at Holland, but it was determined that he was unable to perform his old job. He was assigned to the stock room and has since found employment elsewhere.

QUESTIONS

1. Why was Holland never sued by Timmons?

2. Did the modifications made to the trim blower outlet after the accident contribute to a safer working environment?

3. Should the issue of the cost of alternative corrective measures for the blower system be considered as an integral part of this litigation?

4. Develop a set of trim blower maintenance instructions for the system as it now stands. For your newly designed system. (See question 5)

5. Devise a plan to determine whether the modifications made subsequent to the accident would lead to more jamming.

6. Redesign the trim blower and removal system to prevent jamming.

PART E - EXHIBITS

E1 LETTER DATED MAY 7, 1980 FROM INSURANCE CARRIER FOR HAMPTON TOOL TO MR. MOORE

E2 LETTER DATED AUGUST 8, 1980 FROM INSURANCE CARRIER FOR HAMPTON TOOL TO MR. MOORE

E3 LETTER DATED AUGUST 15, 1980 FROM ATTORNEY REPRESENTING EASTERN FAN TO MR. MOORE

E4 SETTLEMENT DOCUMENT

****

Schedule - Names Associated with Exhibits

1. Timmons - Injured Worker
2. Holland - Timmons' Employer
3. Hampton - Press Manufacturer
4. Eastern - Fan Manufacturer
5. Martin - Timmons' Attorney
6. Moore - Hampton's Attorney
7. Western - Another Fan Manufacturer
8. Bradshaw - Plaintiff's Expert Witness
9. Burr - Defendant's Expert Witness
10. Hornsby - Hampton Safety Engineer

[redacted]

ATTORNEYS AND COUNSELORS AT LAW

[redacted]

May 7, 1980

Mr. [redacted]
[redacted] Insurance Company
P. O. Box [redacted]

1, 3

Re: [redacted] vs. [redacted] Tool Co., et al.
Your File No. [redacted] D/A: [redacted]
Our File No. [redacted]

Dear [redacted]:

This is to confirm our telephone conversation in which we advised that negotiations had broken down in the above-captioned matter.

4

Plaintiff's attorney had come down to $25,000 and had indicated he might come down to $20,000. [redacted] Fam would not go higher than $7,500, therefore, we offered $15,000. Apparently, plaintiff's attorney did not have control of his client because his client indicated he would not take less than $35,000. It was unfortunate that plaintiff's attorney led us to believe that he was negotiating with authority from his client but plaintiff's attorney is relatively inexperienced in handling personal injury cases.

In any event, negotiations broke down and the plaintiff's attorney associated a more experienced personal injury litigation attorney to assist him in the case. This new attorney wants to depose our in-house expert, Mr. [redacted] and our local expert, Dr. [redacted]. Possibly, after he reviews the file further and takes these depositions, we can convince him of the problems they have with the case and negotiate a reasonable settlement.

10, 9

Very truly yours,

6

[redacted] Jr.

XXXXXX, XXXXXX, XXXXX & XXXXXXXXXX
ATTORNEYS AND COUNSELORS AT LAW
XXXX XXXXXX XXX XXXXX
XXXXXXXX, XXXXX XXXXXXXX XXXXX

August 8, 1980

Mr. W.E. Xxxxx
The Xxxx Insurance Company
Post Office Box xxxxx
Xxxxxxxxx, Xxxxx Xxxxxxxx xxxxx

Re: Timmons -vs- Hampton Tool Co., et al.
Our File No. xxx/xxxx
Your Claim No.: xxxxxxxxxxxx

Dear Xxx:

Nothing has changed since our last correspondence to you which advised you that plaintiff's demand was $35,000.00. This was considerably above the $20,000.00 which we recommended of which we would pay one-half. Do you recall that Eastern Fan would not pay but one-half of a total of $15,000.00. We would have recommended going up to $10,000.00 on our part, even though Eastern Fan did not pay but $7,500.00 if that would have settled the case. We do not feel at this time that the case is worth $35,000.00.

Plaintiff's attorneys are going to take the depositions of our local expert, Dr. Burr and our in-house expert Luther Horsnby in the middle of August and are also going to take the deposition of Eastern Fan's in-house expert. Apparently, Eastern Fan is not going to have an outside expert. There is a term of court beginning September 8 and the case may well be tried during the month of September.

We have been pressing Attorney Xxxxx who plaintiff's initial attorney associated for trial, to give us the lowest figure he would take in order that we could see how high you were willing to go to move the case. It appears to us that Eastern Fan will not pay over $7,500.00 and very definitely will not pay one-half of $35,000.00. It will probably be after the above mentioned discovery is completed before Attorney Xxxxx will give us his lowest demand. At that time we can see whether it is worth offering more than the $7,500.00 we have offered. Possibly then he would consider a

Exh. E-2
(Retyped)

covenant with us.

We feel like that we probably have somewhat more exposure than Eastern Fan because we installed the fan in the particular set-up that it was in when the accident occurred and had the opportunity to make the design change that was made by the employer subsequent to the accident whereas Eastern Fan did not have this opportunity.

Also Eastern Fan is going to testify that they had warnings on the fan when they sent them out. Although our people will testify that there were no warnings which they saw and that they only saw warnings on the fan shortly after the date of the accident, this testimony of Eastern Fan will help the plaintiff. In spite of the other testimony that we offer to the contrary, this conflicting testimony may well make the jury feel that there should have been a warning and that either Hampton Tool or Eastern Fan were both negligent because one was not on the fan. Plaintiff has just furnished us with the name of a witness they plan to use who is a former employee of John Holland Company. We plan to depose him shortly.

We feel that we have completed all the necessary discovery on our part and we will advise you of the results of the discovery in August and of the Status of negotiations.

Sincerely,

E. W. Moore
XXXXXX, XXXXXX, XXXXX & XX

Exh. E-2
(Retyped)

[redacted]
Attorneys at Law
[redacted]
POST OFFICE BOX [redacted]
[redacted]

[redacted]

[redacted]

August 15, 1980

RECEIVED
[redacted]
[illegible] 1980

6 350/1050 [redacted], Esq.
[redacted] & [redacted]
Attorneys at Law
Post Office Box [redacted]
[redacted]

1,3 Re: [redacted] vs. [redacted]
4 [redacted] and [redacted]

Dear [redacted]

I have tried to reach you several times but have encountered the following difficulties:

1. You were on the phone.

2. You were on the john.

3. You were not in.

4. You were in but not speaking.

5. You didn't know whether you were in or out and neither did your secretary.

6. You were busy making "do lists".

Seriously, my client wants to make one final effort to settle this case and I have been authorized to increase our offer to $10,000. Can you do the same, thus making a combined offer of $20,000? Please let me know just as soon as possible, because, once again, we might be able to avoid the expense of the depositions which are scheduled shortly.

With best regards, I am

Yours very truly,

[redacted]

JMR/le

If you want to [illegible] go ahead & make offer [illegible]. I'm on vacation till the [illegible].

ECL 266E

STATE OF [redacted]

BEFORE THE INDUSTRIAL COMMITTEE

[redacted] Employee-Plaintiff. - vs - [redacted] Tool Company and [redacted] Fan Company, Third-Party Defendants. and [redacted] Company and [redacted] Workmen's Comp. Defendants.	THIRD-PARTY AGREEMENT AND RELEASE

STATEMENT OF FACTS

The plaintiff, [redacted], while an employee of The [redacted] Company, sustained an injury arising out of and in the course of his employment on or about January 28, 1979, when the fingers of his left hand were crushed and lacerated, allegedly as the result of negligence and carelessness, breach of warranty and strict liability. The defendants, The [redacted] Company and [redacted], accepted the case and furnished medical attention. Plaintiff was treated for his injury by [redacted], M.D. He reached maximum improvement and the claimant was awarded his remaining workmen's compensation benefits on March 29, 1979. Plaintiff instituted suit against the third-party defendants, The [redacted] Tool Company and [redacted] Fan Company, contending that The [redacted] Tool Company was negligent and careless in the design, manufacture, assembling, testing and inspection of a web offset printing press bearing serial no. [redacted], and that [redacted] Fan Company was negligent and careless in the design,

OCT 24 19[illegible]

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manufacture, assembling, testing and inspection of the trim blower operated in conjunction with the aforesaid printing press, and that both breached their warranties to the plaintiff and were strictly liable to the plaintiff. The defendants, The [redacted] Tool Company and [redacted] Fan Company, answered the Amended Complaint, claimed that the plaintiff was contributorily negligent and careless in his operation of the aforesaid printing press and trim blower, that the plaintiff assumed that the risks in the operation of the aforesaid printing press and the trim blower, that the plaintiff's injuries were caused by the sole negligence and carelessness of a third-party, that the plaintiff's injuries were caused by the plaintiff's improper use and/or misuse of the aforesaid printing press and trim blower, and that the plaintiff's alleged injury or damage was caused by the alteration of the aforesaid printing press and trim blower.

The plaintiff is represented by [redacted], Esquire and [redacted], Esquire. The parties have carried on negotiations for settlement of all claims and have now reached a compromise settlement. The third-party defendants, without admitting liability and solely in order to bring the case to a close once and for all, and to be relieved from any and all future liability, medical expenses and other expenses, have agreed to pay to the plaintiff/claimant the sum of Twenty-two Thousand Five Hundred and No/100 ($22,500.00) Dollars, and to pay the further sum of Four Thousand and No/100 ($4,000.00) Dollars, to [redacted], in exchange for a Release in full and complete satisfaction of any and all claims, demands, additional or future medicals expenses, and any and all expenses or claims which the plaintiff and his wife, [redacted] and [redacted] have or may hereafter be entitled to have under and by virtue of the [redacted] Workmen's Compensation Act, or for any other cause in any way arising out of or related to the accident of January 29, 1979, while plaintiff was an employee of the [redacted] Company.

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The undersigned have agreed to accept the aforesaid sums, to be paid as aforesaid, in full and final settlement of any and all claims, actions, or causes of action, additional or future medicals expenses involved, demands for compensation, past, present and future, any change of condition, and for disfigurement, and have agreed that, upon payment of said sums, as aforesaid, the defendants, will be fully acquitted and discharged for any and all liability and future liability and expenses on account of, in any way resulting out of, or in connection with the accident on or about January 29, 1979.

RELEASE

NOW, THEREFORE, based upon the premises herein and the payment of the sum of Twenty-two thousand Five Hundred and No/100 ($22,500.00) Dollars, to [redacted] and [redacted], individually and as husband and wife, the receipt and sufficient of which is herewith acknowledged, we the undersigned, [redacted] and [redacted], individually and as husband and wife, do hereby jointly and severally release, acquit and forever discharge The [redacted] Tool Company and [redacted] Fan Company, third-party defendants, The [redacted] Insurance Company, [redacted] Insurance Company, and any and all other persons, firms or corporations whomsoever, of and from any and all causes of action, claims, demands, costs, and all claims of any nature and kind whatsoever, for property damage, personal injury or otherwise, known or unknown, which the undersigned [redacted], or the undersigned [redacted], has, or may in the future be entitled to have, against the said The [redacted] Tool Company and [redacted] Fan Company, The [redacted] Insurance Company and [redacted] Insurance Company, or against any other person, firm or corporation, whomsoever, on account of, or in any way growing out of, an accident which occurred on January 29, 1979, all as is more fully set forth in the Amended Complaint in an action filed

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in the United States District Court for the District of [redacted], [redacted] Division, or for any other cause.

5 We do, further, hereby grant to our attorneys, [redacted] G. [redacted], Esquire, and E. [redacted] Esquire, full and complete authority to consent to such Order or Orders as may be necessary to dismiss and forever end the above-referenced action.

Further, for and in consideration of the further payment of the sum of Four Thousand and No/100 ($4,000.00) Dollars, to [redacted] Insurance [redacted], the receipt and sufficient of which payment is 1 herewith acknowledged, we the undersigned, [redacted] and [redacted] Insurance [redacted], do hereby jointly and severally release, acquit and forever discharge The [redacted] Tool Company, [redacted] Fan 3,4 Company, The [redacted] Insurance Company, and [redacted] Insurance Company and any and all other persons, firms or corporations whomsoever, of and from any and all causes of action, claims, demands, costs, and all claims of any nature and kind whatsoever, for property damage, personal injury, or otherwise, known or unknown, which the undersigned have or may in the future be entitled to have against the 3,4 said The [redacted] Tool Company, [redacted] Fan Company, The [redacted] Insurance Company and [redacted] Insurance Company or against any other person, firms or corporation whomsoever, on account of in any way growing out of an accident which occurred on or about January 29, 1979.

1 Also, based upon the premises, the undersigned [redacted]
2 [redacted] does hereby release, acquit and forever discharge The [redacted] Company, and [redacted] Insurance [redacted] of and from any and all claims demands, actions or causes of action of any nature, for compensation for any and all types of disability, past, present or future for a change of condition and/or disfigurement, for all future medical expenses and all other expenses under and by virtue of the [redacted] Workmen's Compensation Act, arising out of or any any way

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connected with the aforesaid accident sustained by [redacted]
while in the employ of The [redacted] Company.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this [redacted] day of [redacted] 1980.

SIGNED, SEALED AND DELIVERED
In the Presence of:

[redacted] (L.S.)
individually
and as husband of [redacted]

As to Plaintiff [redacted]

[redacted]
individually and wife of [redacted]

As to [redacted]

[redacted] INSURANCE [redacted]

As to Employer-Carrier

CONSENT:

[redacted], Esquire
Attorney for Plaintiff

[redacted], Esquire
Attorney for Plaintiff

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HOW TO DESIGN, MANUFACTURE AND INSTALL AN UNSAFE BLOWER SYSTEM

INSTRUCTOR'S NOTES

This case was prepared to highlight several types of issues for the audience. By the nature of these issues, some elements will be attractive to the technical student and perhaps be outside the interest of the non-technical student. However most of the issues will be quite understandable by all audiences.

The three main areas of study in this case are: (1) industrial safety and health, (2) equipment design, and (3) legal processes related to injuries in the workplace. Any or all of these may be emphasized in using the case.

The case involves an accident in which a worker, while trying to clean paper from the outlet of a specialized industrial blower, inserted his hand too far and was severely injured. He had left the fan running while performing that operation. The layout of the case is designed to make the audience sympathetic with first one side of the issue of responsibility for the accident and then the other side. However, the general flavor of the case has developed a slight plaintiff bias. A number of exhibits are included with each part of the case. These exhibits were carefully selected from the files that were available. In no way do these exhibits represent all of the paper work involved in the actual event. The files available for this case are approximately two feet high. Unfortunately some of the material provided by one of the law offices was microfilmed, and the quality of reproduction from microfilm leaves something to be desired. However, the impact of the exhibit is best established using the original stationary form. The quality should be sufficient for the audience. The least legible copies have been retyped (as indicated on individual exhibits).

Typical but not exclusive of the type of audiences with which the case may be employed.

1. Engineers and engineering students: Issues of safety and health as related to machinery; design of pneumatic materials handling system; legal aspect of engineering; introduction to the law of products liability.

2. Safety Professionals: Issue of guards and warnings; issues of operator training; introduction to the law of products liability.

3. Business and Management Professional and Students: Issues of training (safety and operations); concept of buying safe

products; concept of third party responsibility in industrial accidents; introduction to the workings of law firms.

4. Legal Professionals and Students: Introduction to products liability; introduction to roles and interactions of law firms in industrial accident cases.

Names of individuals and companies as well as information such as telephone numbers and addresses have been deleted in much of the exhibit material. In the body of the text, names have been changed. To avoid confusion in reading the exhibits sufficient information has been indicated to clarify the intent of the various documents. For additional background for the instructor and possibly for the technical audience a number of referenced books are suggested below. This list is not meant to be comprehensive but should be of assistance.

- Flow and Fan , S.H. Berry, Industrial Press, New York
- Plastics-Pneumatic and Conveying and Bulk Storage , G. Butters, Applied Science Publishers, London
- Gas Solids Handling in the Process Industries , Marchello and Gomez Plata, Dekker, New York
- Pneumatic Machinery , B. W. Anderson, Krieger, New York
- Pneumatic Handbook , Gulf

A set of slides (based on figures used in the case) is available for purchase from:

Elder Photographic, Inc.
Pugh Building
Pike and 5th Streets
Cincinnati, Ohio 45202
(513) 621-5015